SANYO

FILE NO.

SERVICE MANUAL

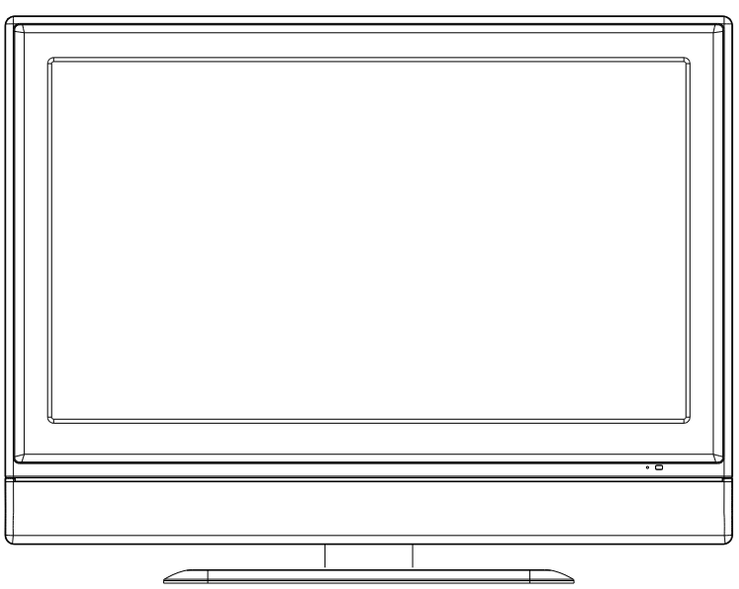
LCD TV

LCD-32XR8DA

PRODUCT CODE No.
1 682 344 39: CCIR DVB-T

LCD-42XR8DA

PRODUCT CODE No.
1 682 344 40: CCIR DVB-T



REFERENCE No.:SM0915037

CONTENTS

Attention: This service manual is only for service personnel to take reference with. Before servicing please read the following points carefully.

Safety precautions

1. Instructions

Be sure to switch off the power supply before replacing or welding any components or inserting/plugging in connection wire Anti static measures to be taken (throughout the entire production process!):

a) Do not touch here and there by hand at will;

b) Be sure to use anti static electric iron;

c) It's a must for the welder to wear anti static gloves.

Please refer to the detailed list before replacing components that have special safety requirements. Do not change the specs and type at will.

2. Points for attention in servicing of LCD

2.1 Screens are different from one model to another and therefore not interchangeable. Be sure to use the screen of the original model for replacement.

2.2 The operation voltage of LCD screen is 700-825V. Be sure to take proper measures in protecting yourself and the machine when testing the system in the course of normal operation or right after the power is switched off. Please do not touch the circuit or the metal part of the module that is in operation mode. Relevant operation is possible only one minute after the power is switched off.

2.3 Do not use any adapter that is not identical with the TV set. Otherwise it will cause fire or damage to the set.

2.4 Never operate the set or do any installation work in bad environment such as wet bathroom, laundry, kitchen, or nearby fire source, heating equipment and devices or exposure to sunlight etc. Otherwise bad effect will result.

2.5 If any foreign substance such as water, liquid, metal slices or other matters happens to fall into the module, be sure to cut the power off immediately and do not move anything on the module lest it should cause fire or electric shock due to contact with the high voltage or short circuit.

2.6 Should there be smoke, abnormal smell or sound from the module, please shut the power off at once. Likewise, if the screen is not working after the power is on or in the course of operation, the power must be cut off immediately and no more operation is allowed under the same condition.

2.7 Do not pull out or plug in the connection wire when the module is in operation or just after the power is off because in this case relatively high voltage still remains in the capacitor of the driving circuit. Please wait at least one minute before the pulling out or plugging in the connection wire.

2.8 When operating or installing LCD please don't subject the LCD components to bending, twisting or extrusion, collision lest mishap should result.

2.9 As most of the circuitry in LCD TV set is composed of CMOS integrated circuits, it's necessary to pay attention to anti statics. Before servicing LCD TV make sure to take anti static measure and ensure full grounding for all the parts that have to be grounded.

2.10 There are lots of connection wires between parts behind the LCD screen. When servicing or moving the set please take care not to touch or scratch them. Once they are damaged the screen

would be unable to work and no way to get it repaired.
If the connection wires, connections or components fixed by the thermotropic glue need to disengage when service, please soak the thermotropic glue into the alcohol and then pull them out in case of dagmage.
2.11 Special care must be taken in transporting or handling it. Exquisite shock vibration may lead to breakage of screen glass or damage to driving circuit. Therefore it must be packed in a strong case before the transportation or handling.
2.12 For the storage make sure to put it in a place where the environment can be controlled so as to prevent the temperature and humidity from exceeding the limits as specified in the manual. For prolonged storage, it is necessary to house it in an anti-moisture bag and put them altogether in one place. The ambient conditions are tabulated as follows:

Temperature	Scope for operation	0 ~ +50 ^{o}C
	Scope for storage	-20 ~ +60 ^{o}C
Humidity	Scope for operation	20% ~ 85%
	Scope for storage	10% ~ 90%

2.13 Display of a fixed picture for a long time may result in appearance of picture residue on the screen, as commonly called “ghost shadow”. The extent of the residual picture varies with the maker of LCD screen. This phenomenon doesn’t represent failure. This “ghost shadow” may remain in the picture for a period of time (several minutes). But when operating it please avoid displaying still picture in high brightness for a long time.

3. Points for attention during installation

3.1 The front panel of LCD screen is of glass. When installing it please make sure to put it in place.
3.2 For service or installation it’s necessary to use specified screw lest it should damage the screen.
3.3 Be sure to take anti dust measures. Any foreign substance that happens to fall down between the screen and the glass will affect the receiving and viewing effect
3.4 When dismantling or mounting the protective partition plate that is used for anti vibration and insulation please take care to keep it in intactness so as to avoid hidden trouble.
3.5 Be sure to protect the cabinet from damage or scratch during service, dismantling or mounting.

Alignment instructions

1. Test equipment

VG-848 (YPbPr,VGA signal generator)

VG-849 (HDMI signal generator)

CA210 (white balancer)

2. Power test

Connect data processing board, power board and IR board according the wiring diagram, connect the power and press “standby” button to turn on the TV.

a) Test the pin voltage of X802, the data is shown in table1:

Table1 voltage data of X802

X802	Pin1	2	3	4	5, 6	7, 8	9	10	11
Voltage	8.55~9.45V	0	4.85~5.35V	0	11.4~12.6V	0	4.85~5.35V	0	>2.5

b) Test the pin voltage of XV01, the data is shown in table2:

Table2 voltage data of XV01

XV01	Pin1, 2	3, 4, 5
Voltage	23.8~25.2V	0

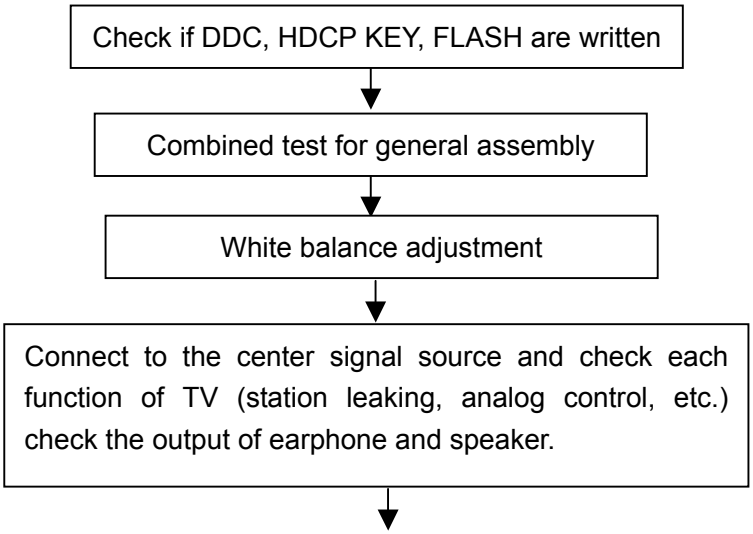
c) Test the pin voltage of X101, the data is shown in table3:

Table3 voltage data of X101

X101	Pin1	2
Voltage	31.4~32.6V	0

3. Alignment flow-chart

The alignment flow-chart is shown as fig-1



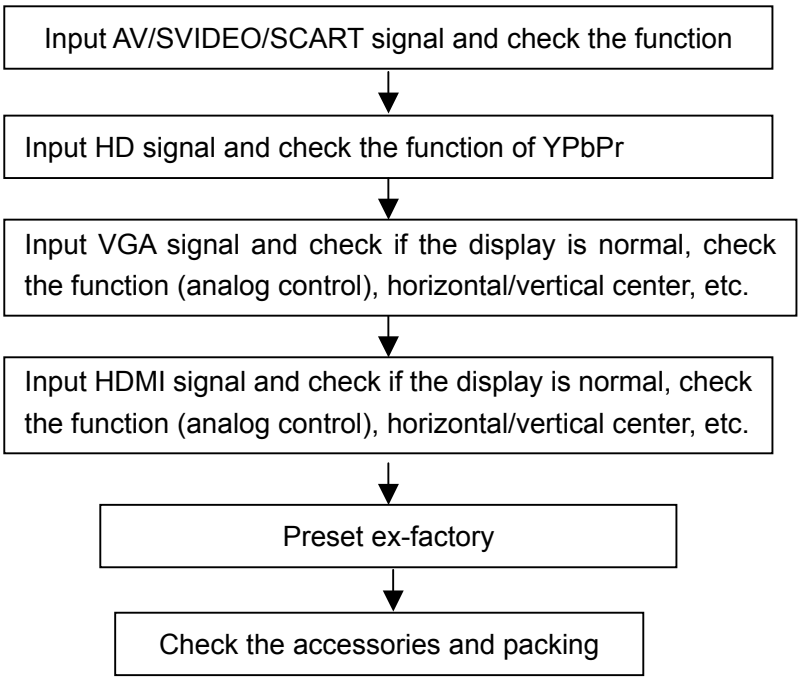


Fig-1 adjustment flow-chart

4. Adjustment instruction

4.1 Unit adjustments

4.1.1Connect all the boards according to wiring diagram, then power on and observe the display.

4.1.2 Method for entering factory menu:

a) Press “SOURCE”, “2”, “5”, ”8” and “0” in turn to enter factory menu;
b) Press “CH+” and “CH-” to move the cursor to the adjustment page of the level one factory menu, then press ”OK” to enter;
c) Press “CH+” and “CH-” to move the cursor up and down;
d) Press “VOL-” and “VOL+” to adjust the item when the cursor move to a certain adjust item;
e) Press “MENU” to exit to the previous factory menu;
f) Press “EXIT” to exit the factory menu at any situation;
g) Press “OK” to enter the sub factory menu;
h) **ADC ADJUST**, ADC correction of VGA, Component channel;
i) **W/B ADJUST**, white balance adjustment;
j) **POWER Mode**, set the turn-on modes. Standby---standby when power on; Mem---memory; ForceOn---power on; ForceOn can be used for aging; set the “power mode” to “Standby” when preset ex-factory unless the client appointed it;
k) **ISP Mode**, ON---soft upgrading through VGA port with ISP device, OFF---DDC function of VGA; the setting will not be memory and will be “OFF” when power on again;
l) **REST ALL**, initialization of the factory and user data; after this item is confirm, the unit will restart and display the guiding image.
m) **Factory Data Reset**, factory data initialization (including white balance adjustment, ADC correction and other adjusted data);
n) **Factory Channel Preset**, preset the factory channel; please connect to the center signal source when operating; the present digital frequency is CH28 (529.5MHz), CH33 (564.5MHz) for Australia and CH45 (666MHz) for UK, if the signal changes, perform “DTV manual search” in

"Channel" menu and the operation needs 15s or so.

o) **MST Debug**, the default is OFF. OFF---RS-232 should match the design criterion; ON--- it should be convenient for using exploitation tool to adjust. The setting will not be memory and will be "OFF" when power on again;

p) **Backlight**: adjust the backlight brightness, adjust the data and test the voltage of X804 pin2 (PWM), let the voltage to be the corresponding PWM voltage which the brightness is maximum. It will be preset and doesn't need adjust.

q) **SSC Adjust**, adjust the frequency spectrum expand, it will be preset and doesn't need adjust.

r) **AUDIO Curve**, adjust the sound curve, it will be preset and doesn't need adjust.

s) **Picture Mode**, set the picture values of each channel. Normally, they are preset and needn't adjust.

t) There is data in EEPROM after software upgrade, please perform Reset All before the first adjustment.

4.2 ADC correction

4.2.1ADC correction in VGA channel

a) Switch to VGA channel.

b) Press" SOURCE", then press "2, 5, 8, 0" in turn to enter the level one factory menu.

c) Move the cursor to "ADC ADJUST" and press OK to enter the sub-menu.

d) Input VGA signal (VG-848 Timing:856(1024x768/60Hz), Pattern:920 Gray 8 step(H)). Move the cursor to "mode", press CH+ and CH- to select "RGB", move the cursor to "AUTO ADC" and press OK to adjust automatically till complete.

4.2.2 ADC correction in YPbPr channel

a) Switch to YPbPr channel.

b) Press" SOURCE", then press "2, 5, 8, 0" in turn to enter the level one factory menu.

c) Move the cursor to "ADC ADJUST" and press OK to enter the sub-menu.

d) Input YPbPr signal (VG-848 Timing:978(483P), Pattern:984 SMPTE Color Bar). Move the cursor to "mode", press CH+ and CH- to select "YPbPr(HD)", move the cursor to "AUTO ADC" and press ENTER to adjust automatically till complete.

e) Input YPbPr signal (VG-848 Timing:978(483P), Pattern:984 SMPTE Color Bar). Move the cursor to "mode", press CH+ and CH- to select "YPbPr(SD)", move the cursor to "AUTO ADC" and press ENTER to adjust automatically till complete.

4.3 White balance adjustment

The default of color temperature of COOL is 12000K and the coordinate is (272, 278); color temperature of NORMAL is 9300K and the coordinate is (285,293), color temperature of WARM is 6500K and the coordinate is (313,329).

4.3.1 Adjustment steps

Before the white balance adjustment, please let the unit working at least 30 minutes and at a stable situation, use BBY channel of the white balancer CA-210.

a) Switch to HDMI channel;

b) Press" SOURCE", then press "2, 5, 8, 0" in turn to enter the level one factory menu.

c) Move the cursor to "W/B ADJUST" and press OK to enter the sub-menu.

d) Input DVI/HDMI signal 1024X768/60Hz 16 step Gray (Timing:856, Pattern:921). Move the cursor to "MODE", press CH+ and CH- to select "HDMI" or other HDMI channel, move the cursor to "TEMPERTURE" and press CH+ and CH- to select "COOL".

e) Fix G GAIN, adjust R GAIN, B GAIN and let the color coordinate of the fourteenth scale be

(272,278).

f) Fix G OFFSET, adjust R OFFSET, B OFFSET and let the color coordinate of the third scale be (272,278).

g) When adjusting, please keep the color temperature of high light to be X=272±5, Y=278±5 and the low light to be X=272±8, Y=278±8.

h) Move the cursor to “COPY ALL” and copy the data to the other channels.

i) Check if the color temperatures of NORMAL and WARM are up to the mustard (low light acceptable error:±8, high light acceptable error:±5), if not, adjust R-GAIN/ B-GAIN/ R-OFF/ B-OFF.

j) Check the color temperature of COOL, NORMAL and WARM of other channels (ANALOGTV, DVB-T, Video, YPbPr,VGA), if they are not up to the mustard then adjust and store the data separately.

k) The reference of adjustment rule is below:
   B gun: lower B gun to increase X, Y coordinate data, while raise B gun to decrease the data.
   R gun: raise R gun to increase X coordinate data, while lower R gun to decrease the data; (R gun adjustment will affect X and Lv slightly).
   G gun: raise G gun to increase Y coordinate data, while lower G gun to decrease the data; (G gun adjustment will affect Y and Lv greatly).

5. Performance check

5.1 TV function

Connect RF to the center signal source, enter Channel menu → auto search, check if there are channels be skipped, check if the picture and speaker are normal.

5.2 AV/S-Video terminals

Input AV/S-Video signal, check if the picture and sound are normal.

5.3 YPbPr/YcbCr terminal

Input YUV signal (VG848 signal generator), separately input the YUV signals listed in table4 and check if the display and sound are normal at any situation (power on, channel switch and format convert, etc.)

Table4 YUV signal format

No.	Resolution	H-frequecny (kHz)	V-frequecny (kHz)	Point clock pulse frequecny (MHz)	Note
1	720X480	15.734	60	13.5	480i(NTSC)
2	720X480	15.734	59.94	13.5	480i(NTSC)
3	720X576	15.625	50	13.5	576i(PAL)
4	720X480	31.469	60	27	480p(NTSC PROG)
5	720X480	31.469	59.94	27	480p(NTSC PROG)
6	720X576	31.25	50	27	576p(PAL PROG)
7	1280X720	45	59.94	74.18	720p(59p)
8	1280X720	45	60	74.25	720p(60p)
9	1280X720	37.5	50	74.25	720p(50p)
10	1920X1080	33.75	59.94	74.25	1080i(59i)
11	1920X1080	33.75	60	74.25	1080i(60i)
12	1920X1080	28.125	50	74.25	1080i(50i)

13	1920X1080	67.5	59.94	148.35	1080p(59p)
14	1920X1080	67.5	60	148.5	1080p(60p)
15	1920X1080	56.25	50	148.5	1080p(50p)
16	1920X1080	-	23.94/24	-	-
17	1920X1080	-	25	-	-
18	1920X1080	-	29.97/30	-	-

5.4 VGA terminal

Input VGA signal (VG848 signal generator), separately input the signals listed in table5 and check the display and sound. If the image is deflection of the Horizontal and vertical, select Picture->Screen->Auto Adjusting to perform auto-correct.

Table5 VGA signal format

No.	Resolution	H-frequecny (kHz)	V-frequecny (kHz)	Point clock pulse frequecny (MHz)	Note
1	640X480	31.469	59.94	25.175	IBM
2	720X400	31.469	70.086	28.322	IBM
3	640X480	37.861	72.809	31.5	VESA
4	640X480	37.5	75	31.5	VESA
5	800X600	35.156	56.25	36	VESA
6	800X600	37.879	60.317	40	VESA
7	800X600	48.077	72.188	50	VESA
8	800X600	46.875	75	49.5	VESA
9	1024X768	48.363	60.004	65	VESA
10	1024X768	56.476	70.069	75	VESA
11	1024X768	60.023	75.029	78.75	VESA
12	1152X864	67.5	75	108	VESA
13	1280X960	60	60	108	VESA
14	1280X1024	63.98	60.02	108	VESA
15	1280X1024	80	75	135	SXGA
16	1440X900	-	60	-	-
17	1680X1050	-	60	-	-
18	1360X768	47.7	60	85.5	-

5.5 HDMI terminal

Input HDMI signal (VG849 signal generator), separately input the signals listed in table4 and table5 and check the display and sound (32KHz, 44.1KHz, 48KHz) at any situation (power on, channel switch and format convert, etc.)

5.6 other functions check

a) Check the turn on/turn off timer, sleep timer, picture/sound mode, OSD, stereo and digital sound port, etc.
b) Check the digital program, if Audio Only is normal.
c) Check MHEG function of the digital program for UK unit.
d) Check if “CI: Common Interface” is normal.
e) Check logical channel number (LCN) for Australia.

f) Check logical channel number (LCN) for France, UK and Italy.
g) Check OTA function for Australia special custom.

6. Presetting before ex-factory

Enter user menu LOCK page, select “Restore Factory Default” to preset the ex-factory.
a) Clear the program information.
b) Clear VCHIP, parental control, etc.
c) Set the default data of user menu.
d) Set Menu Language to English.
e) Set Power on Mode to Off.

7. Software instruction

Table6 software instruction

No.	Code No.	Type	Function	written before paste	Method
N810	5272532003	EN25B32-100HIP	FLASH	Yes	Written with device like ALL11, write-protect, refer to note1.
N807	5272404002	AT24C04	HDMI KEY	Yes	Written with device like ALL11
NA03	5272402002	AT24C02	HDMI EDID	Yes	
NA04	5272402002	AT24C02	HDMI EDID	Yes	
NA08	5272402002	AT24C02	HDMI EDID (Australia only)	Yes	
N107	5272421002	AT24LC21A	VGA EDID	Yes	

Note1: write-protect setting: enter ALL-100 interface, select Config and press “config setting”, set Protect to “All Protect”, select “config” when writing. The “write-protect” will be set again when ALL-100 program restart.

Note2: software writing and upgrade method with ISP writing-device
(1) Main board upgrade: connect a four-pin wire of the ISP writing-device to Debug port(X806) on the main board; Unit upgrade: connect VGA ports of the ISP writing-device and the main board, enter factory menu and set “ISP Mode” to “ON”.
(2) Using Mstar writing-tool on line, click “Connect” menu, if it displays “Device EN25B32“ as shown in fig2, the connection is success, if it fails, select “EN25B52” of “Device” manually and press “Connect” again.

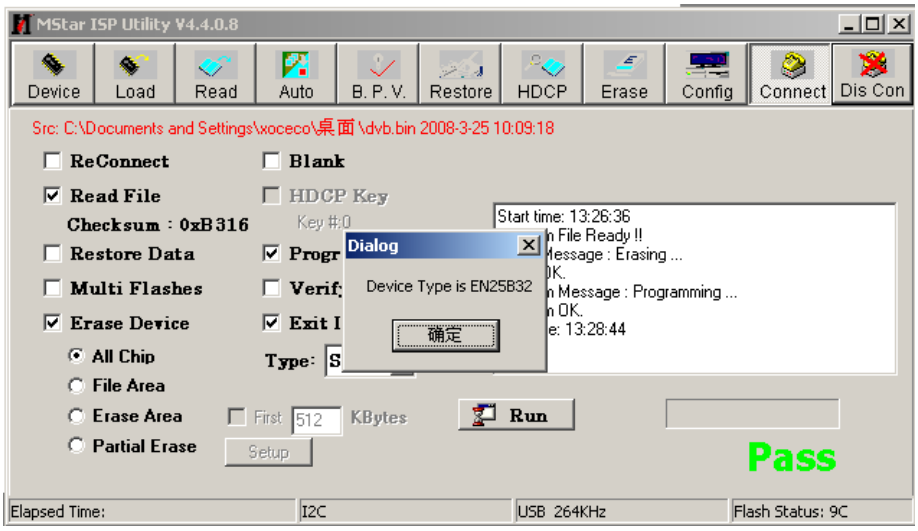


Fig2 Device EN25B52 successful connection

(3) Click “Read” and select the file written (MERGE.bin for example) as shown in fig3.

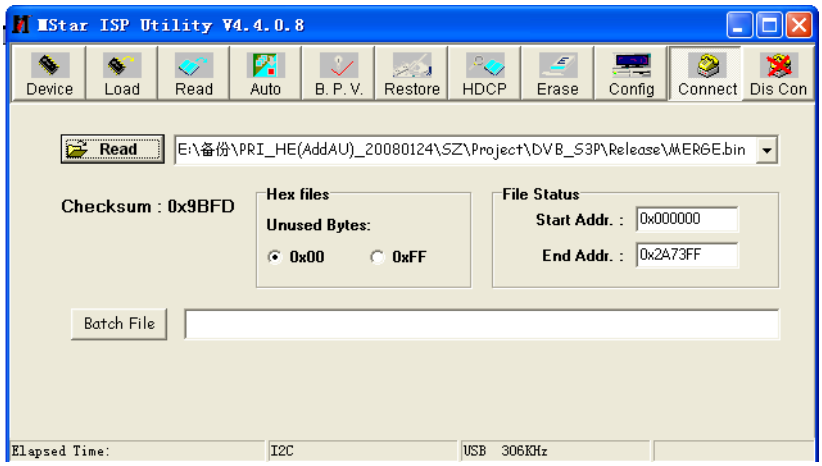


Fig3 the written file

(4) Click “Auto”, select “All chip” , “program” and other items as shown if fig4.

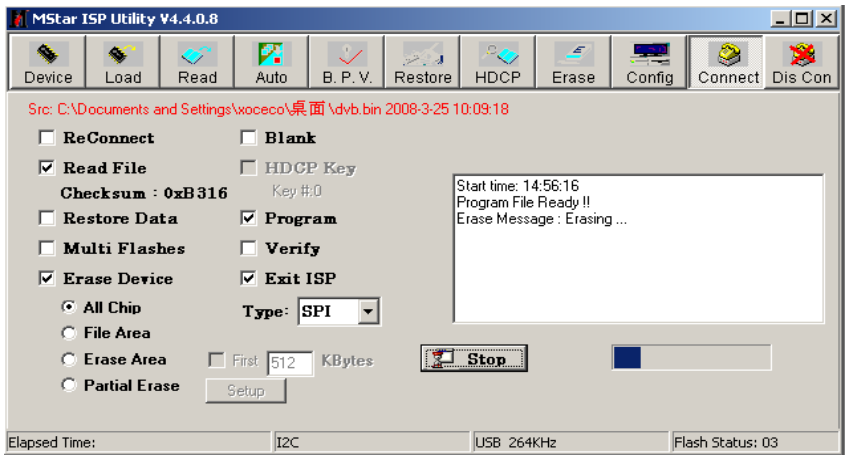


Fig4 selected items

(5) Press “Run” in fig4 to begin writing and there are two steps: Erase and Program.

(6) If the process of writing succeeds, it will display “Pass” near “Run” as shown in fig5.

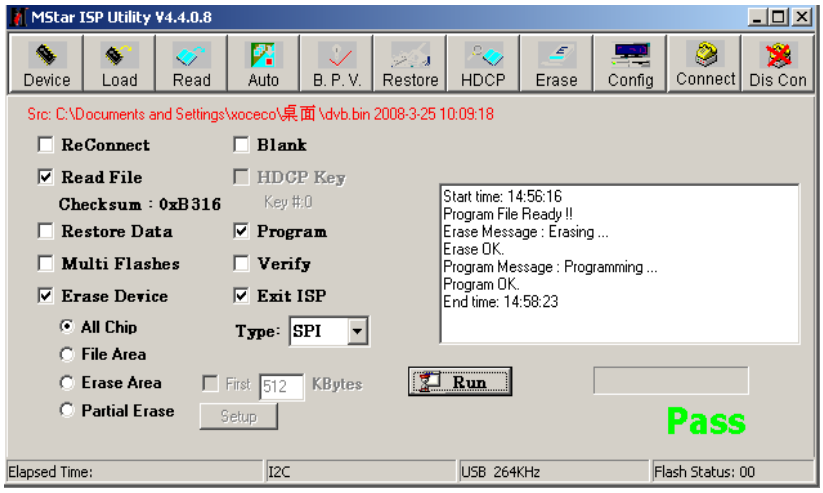


Fig5

(7) Repeat step 2) and 5) to write the program to the other units without exit the ISP interface.

Note3: software writing and upgrade method with USB port

(1) Make sure the USB device is formatted as FAT32.

(2) Copy the program named Merge.bin to USB device.

(3) Insert the USB device to USB port of the unit, power on and select RF-ATV channel, begin USB upgrade after OSD disappear. It will display blue when read the data from USB device, while display red when write Flash. The flash must be pull out when display red. It will flicker in red and blue if the process of writing is abnormal.

(4) The method are not applicable to all the USB devices, try another one if a certain USB device is inapplicable.

Working principle analysis of the unit

1. PAL/SECAM signal flow:

Antenna reception PAL/SECAM signal will be send to tuner TDA1616, which contains frequency turning, HF and IF amplifier circuit and is controlled by master control IC MSD109 (comprises CPU) through I2C bus. The analog IF signal via intermediate frequency amplifying, video SAW filter K3953 and audio SAW filter K9656 to input to analog demodulate IC (IF) R2A10406NP, after demodulating and output standard video signal TV-CVBS and sound IF signal (SIF).

TV-CVBS will send to the master control IC MSD109 to video decode, deinterlace and scale, then output LVDS level drive for panel display.

The sound IF (SIF) will be fed into MSD109, after demodulating, pre-amplifying, bass adjusting and volume control, the sound signal will separate into L/R channels and input to earphone amplifier BH3547F amplifying, then output two ways. One way will be sent to earphone, another will be sent to digital sound amplifier R2A15112FP amplifying then sent to speaker.

2. DVB-T signal flow:

Antenna reception DVB-T signal will be sent to tuner TDA1616, after frequency tuning, HF amplification, IF amplification and SAW FILTER, output IF signal to demodulation chip CE6353, via QAM demodulation, fed to MSD109 for information source decoding in the format of standard serial TS stream.

HD video signal via decoding to A/D conversion and OSD superposition, at last output LVDS drive level for panel display.

HD audio signal via decoder built-in MSD109, resumed to multi- channel sound of Dolby AC-3. The audio signal will be sent to back end to perform bass adjustment and volume control, then it will separate into L/R channels and input to earphone amplifier BH3547F amplifying, then output two ways. One way will be sent to earphone, another way will be sent to digital sound amplifier R2A15112FP amplifying then sent to speaker.

3. AV/SV signal flow

SV signal and the first path AV signal switch automatically via S-terminal socket, the signal and the second path AV signal will be fed to MSD109 to perform video decode, deinterlace and scale, then output LVDS drive level for panel display.

Audio signal from AV/SV via matched resistance is fed to external audio switch HEF4052 to switch, then it is directly sent to MSD109 to bass adjust and volume control, the sound will separate into L/R channels and input to earphone amplifier BH3547F amplifying, then output two ways. One way will be sent to earphone, another way will be sent to digital sound amplifier R2A15112FP amplifying then sent to speaker.

4. PC/YPrPb signal flow

PC and the second path YPbPr signal are switched via external switcher PI5V330, then the signal and the first path YPbPr signal will be sent to MSD109 A/D conversion, output R/G/B of 24 bit to back end module to digital decode, image scale and OSD superposition, then send to LVDS level drive for panel display.

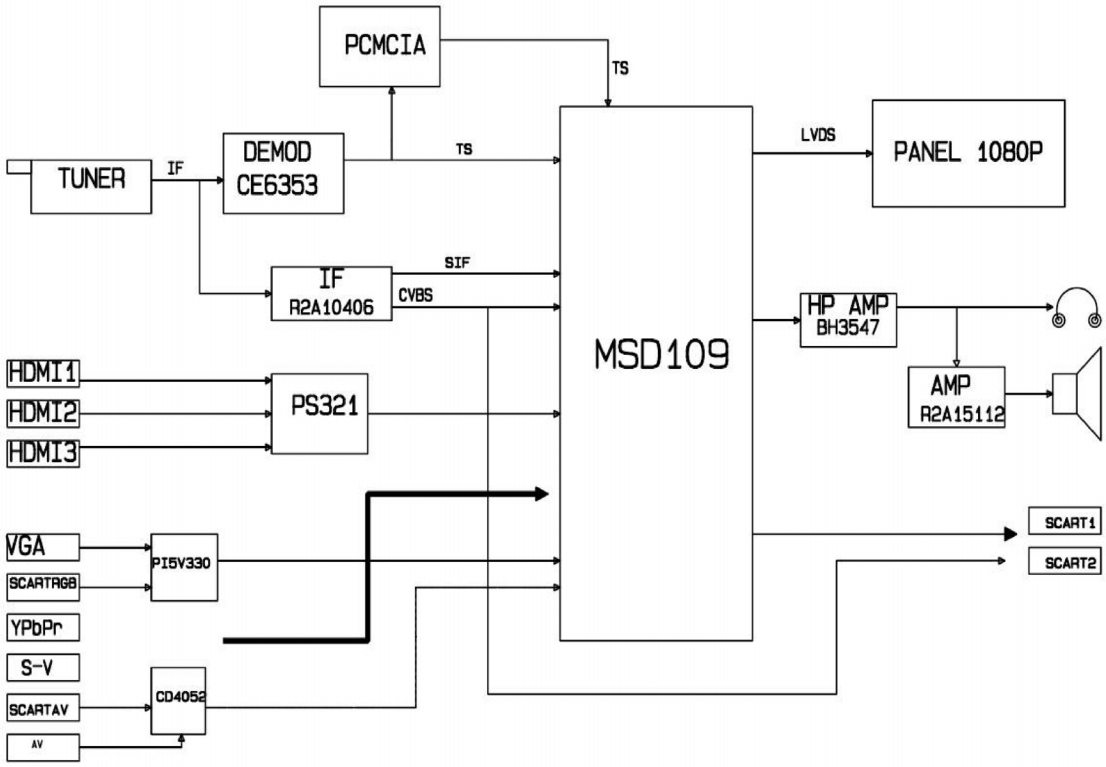
Sound signal of PC/YPrPb via matched resistance and a-c couple are sent to MSD109 to bass adjust and volume control, the sound will separate into L/R channels and input to earphone

amplifier BH3547F amplifying, then output two ways. One way will be sent to earphone, another way will be sent to digital sound amplifier R2A15112FP amplifying then sent to speaker.

5. HDMI signal flow

Three HDMI video signals via switcher PS321 are directly fed to the master control IC MSD109 to digital decode, image scale and OSD superposition, then output LVDS drive level for panel display. HDMI audio signal via decoder built-in MSD109 is fed to back end to bass adjust and volume control, the sound will separate into L/R channels and input to earphone amplifier BH3547F amplifying, then output two ways. One way will be sent to earphone, another way will be sent to digital sound amplifier R2A15112FP amplifying then sent to speaker.

Block diagram



IC block diagram

1. MSD109CL

Twin-turbo 8051 MCU

Supports multi-path TS stream input

Two paths TS stream output, integrated switch selection

Supports both serial and parallel TS stream input

Maximum TS data rate is 104Mbps for serial or 13MB/sec for parallel

MPEG-2 audio decoder

MPEG-1, MPEG-2 (Layer I/II) and Dolby1 Digital(AC-3) audio decoder

MPEG-4 decoder

NTSC/PAL/SECAM video decoder

Supports NTSC-M, NTSC-J, NTSC-4.43, PAL (B,D,G,H,M,N,I,), and SECAM

Multi-standard sound processor

Supports BTSC/A2/EIA-J demodulation in NTSC and A2/NICAM/FM/AM demodulation in PAL

Supports MTS Mode MONO/STEREO/SAP in BTSC/EIA-J and MONO/STEREO/DUAL in A2/NICAM

Digital Audio Interface

Analog RGB Compliant/YUV input Ports

Two analog ports support up to 1080P

Supports PC RGB input up to SXGA@75Hz

Supports HDTV RGB/YPbPr/YCbCr

Supports Composite Sync and SOG (Sync-on-Green) separator

Automatic color calibration

DVI/HDCP/HDMI input ports

Supports up to 225MHz @ 1080P 60Hz with 12-bit deep-color resolution

High-bandwidth Digital Content Protection (HDCP) 1.1 compliant receiver

High Definition Multimedia Interface (HDMI) 1.3 compliant receiver with CEC (Consumer Electronics Control) support

Video Processing & Conversion

3-D motion adaptive video de-interlacers with edge-oriented adaptive algorithm for smooth low-angle edges

Automatic 3:2 pull-down & 2:2 pull-down detection and recovery

10-bit internal data processing

3-D video noise reduction

Output Interface

Supports up to 10-bit dual LVDS full-HD (1920 x 1080) panel interface

Video output port

Supports CVBS/S-video bypass output

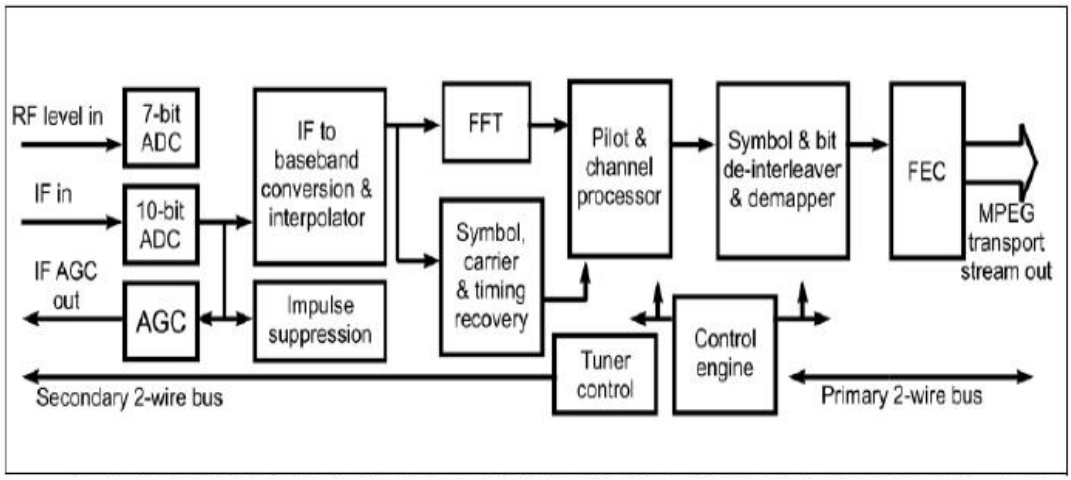
Built-in video encoder for encoding digital video into CVBS output

Miscellaneous

Supports DVB-CI port conditional receiver

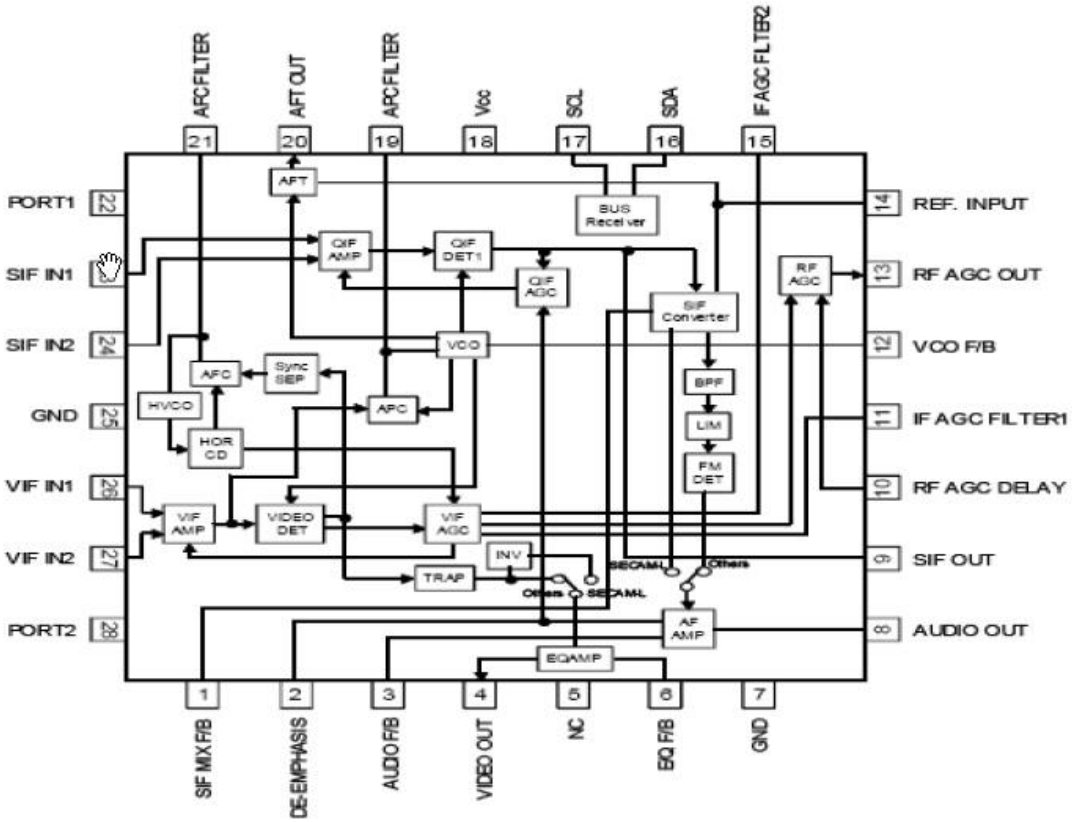
USB 2.0 port can be connected to the external equipment for software upgrading

2. CE6353



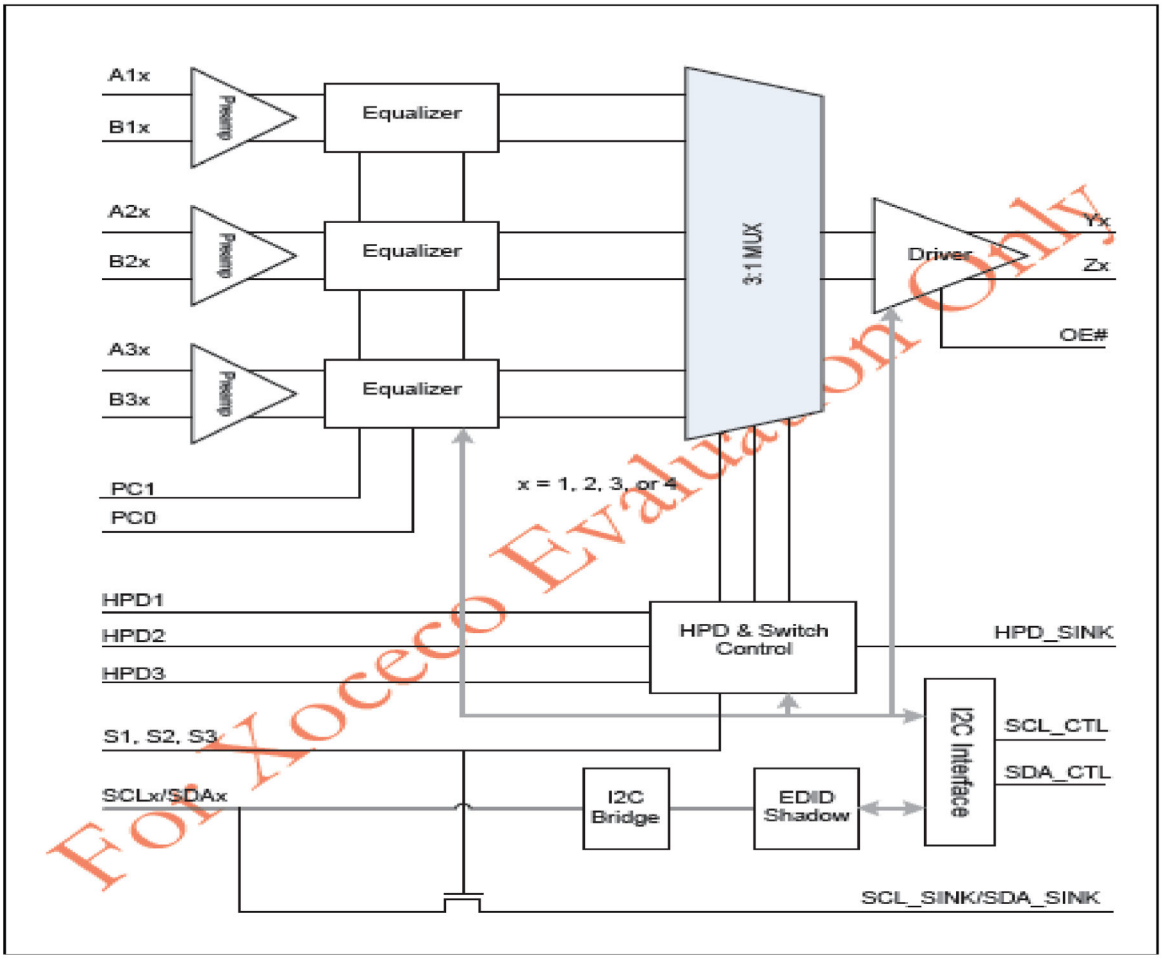
The chip comprises 8MHz bandwidth SAW and supports demodulation of 6MHz, 7MHz and 8MHz, 2K/8K carrier and supports both serial and parallel TS stream output.

3. R2A10406NP



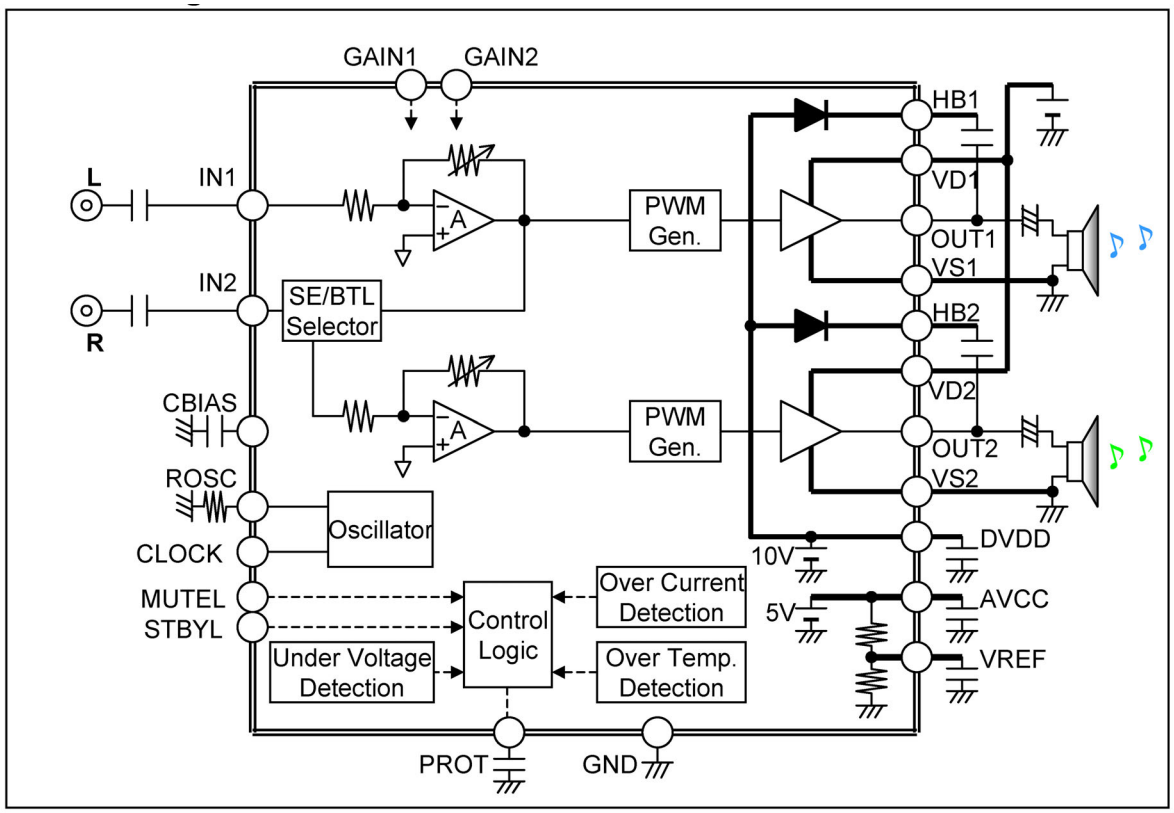
*VIF frequency corresponds to 38.9MHz.
*SIF frequency corresponds to M/N,B/G,I,D/K and SECAM L,L'.
*I2CBUS control.

4. PS321



The chip supports both I2C control and I/O control mode; supports both internal and external EDIT.

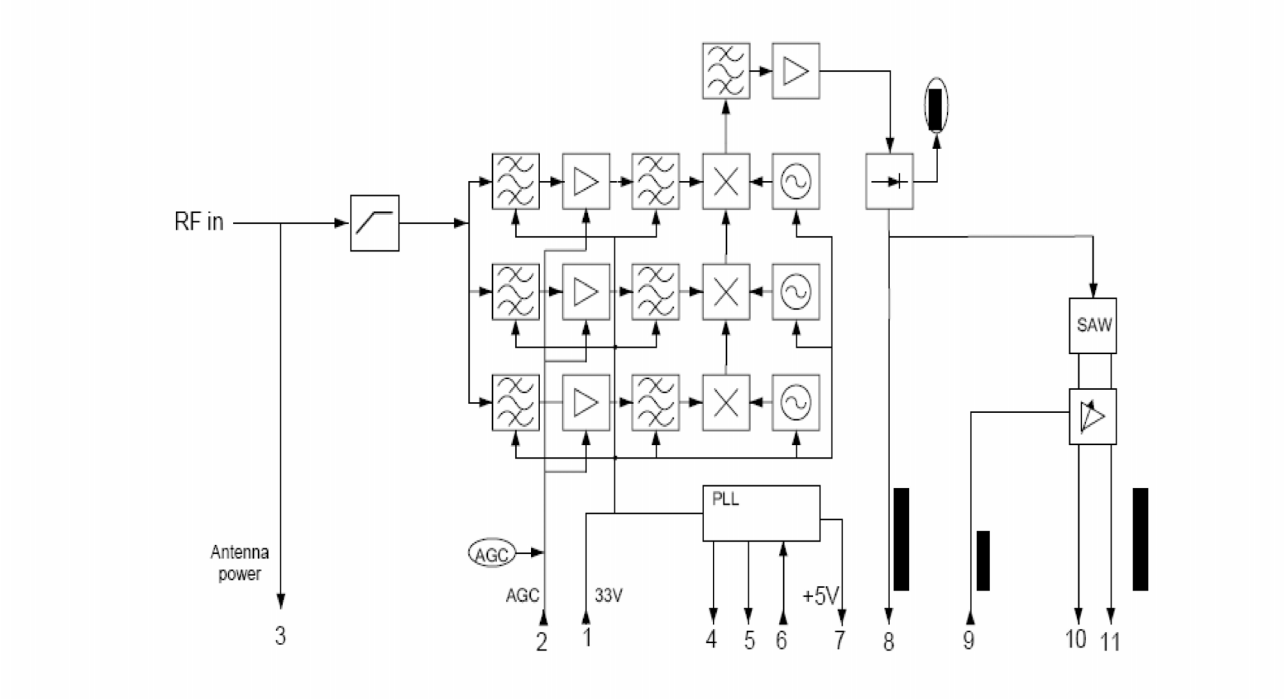
5. R2A15112FP



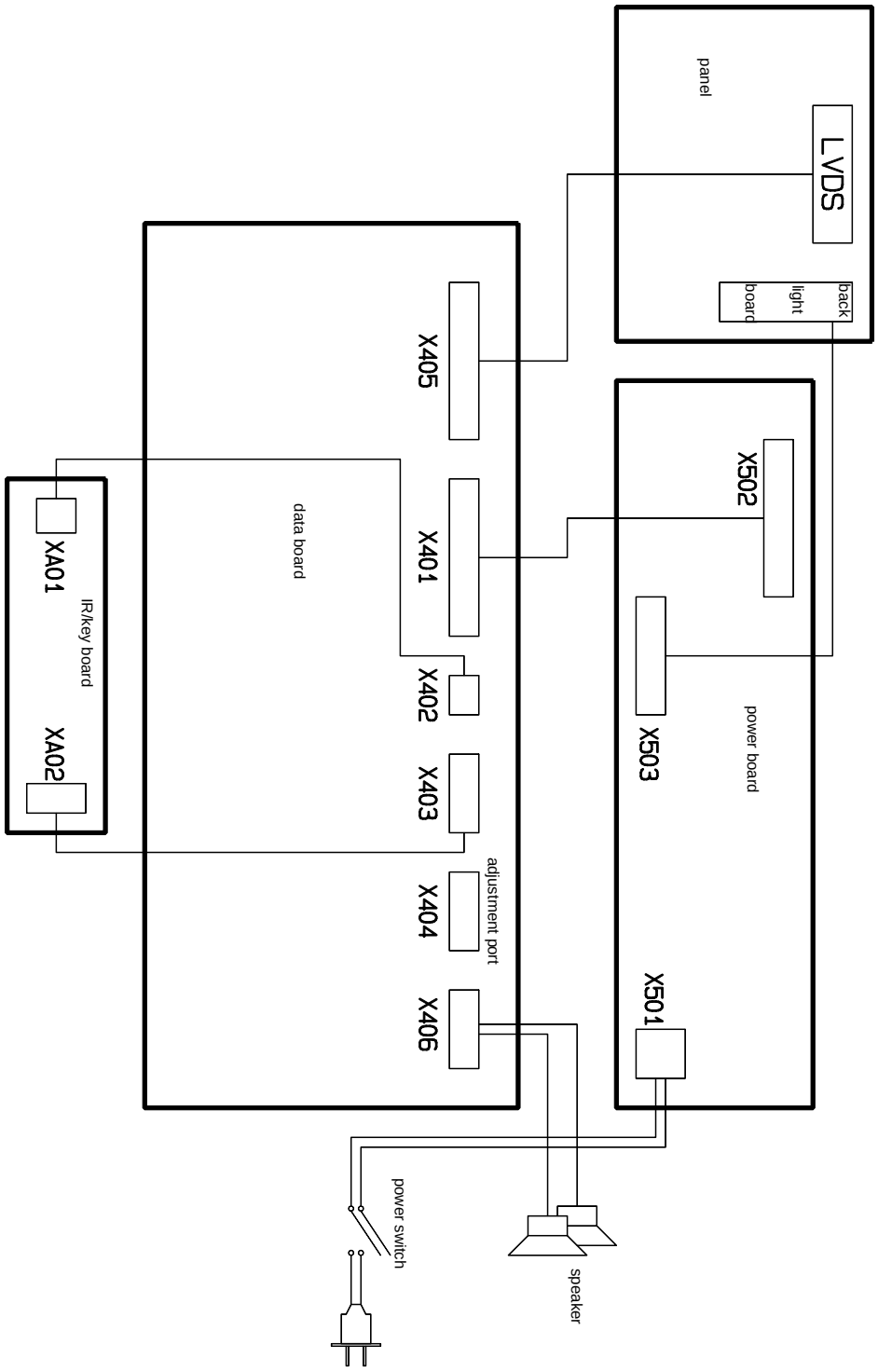
R2A15112FP has a maximum power of 15W(typ) × 2ch.
(VD = 24V,THD = 1%, SE) at a 4 Ω load.

Item	Symbol	Terminal		GAIN Value
		GAIN1	GAIN2	
GAIN	G1	L	L	15.5 dB
	G2	H	L	21.5 dB
	G3	L	H	27.5 dB
	G4	H	H	31.5 dB

6. TDA1616


RF in
Antenna
power
3
AGC
AGC
2
33V
1
PLL
4
5
6
+5V
7
8
9
SAW
10
11

Wiring diagram



Trouble shooting

1. Fault clearance

Before servicing please check to find the possible causes of the troubles according to the table below.

1.1 Antenna (signal):

Picture is out of focus or jumping	● Bad status in signal receiving ● Poor signal ● Check if there are failures with the electrical connector or the antenna. ● Check if the antenna is properly connected.
Fringe in picture	● Check if the antenna is correctly oriented. ● Maybe there is electric wave reflected from hilltop or building.
Picture is interfered by stripe shaped bright spots	● Possibly due to interference from automobile, train, high voltage transmission line, neon lamp etc. ● Maybe there is interference between antenna and power supply line. Please try to separate them in a longer distance. ● Maybe the shielded-layer of signal wire is not connected properly to the connector.
There appear streaks or light color on the screen	● Check if interfered by other equipment and if interfered possibly by the equipment like transmitting antenna, non-professional radio station and cellular phone.

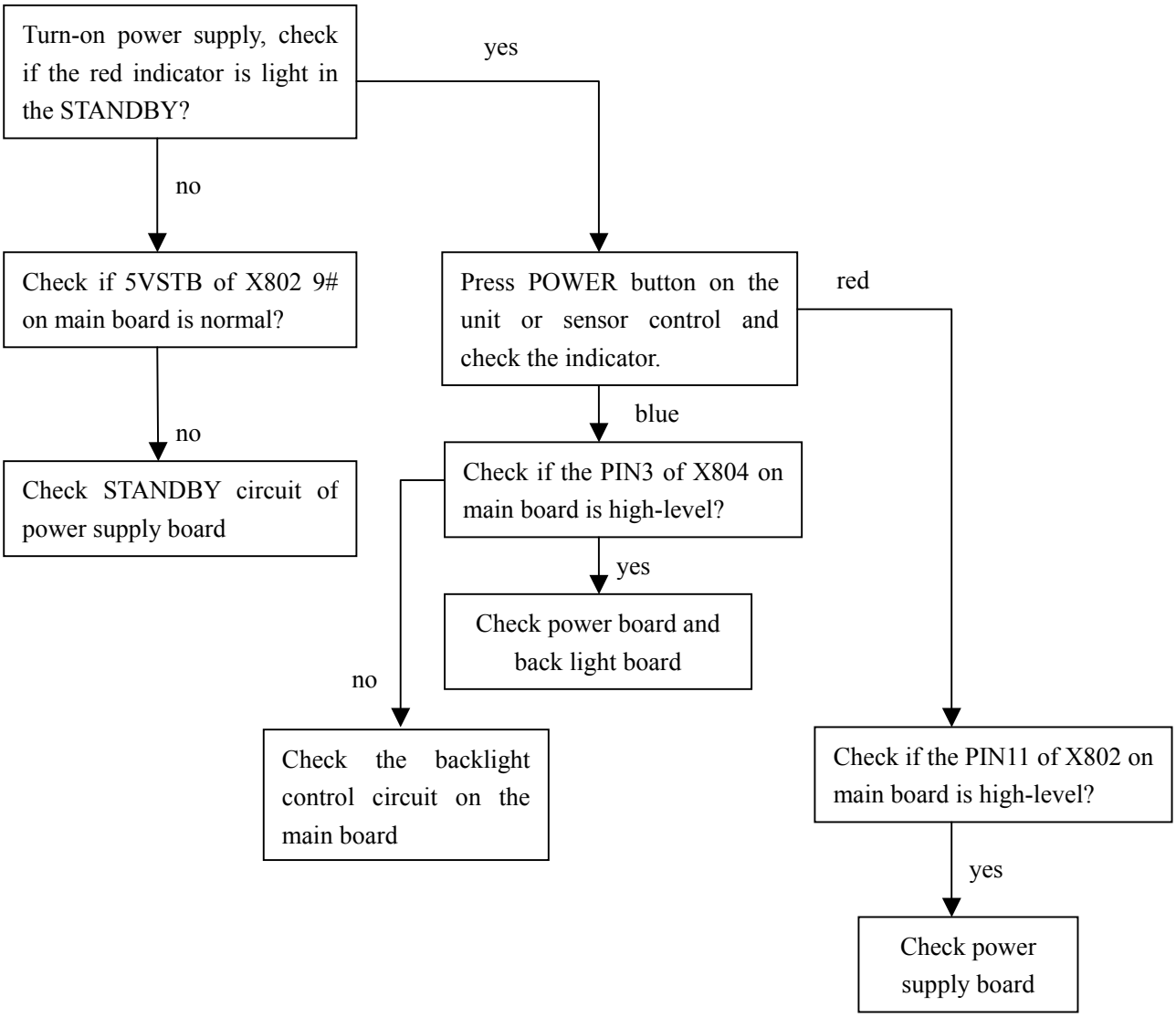
1.2 TV set:

Symptoms	Possible cause
Unable to switch the power on	● Check to see if the power plug has been inserted properly into the socket.
No picture and sound	● Check to see if the power supply of liquid crystal TV has been switched on. (As can be indicated by the red LED at the front of the TV set) ● See if it's receiving the signal that is transmitted from other source than the station ● Check if it's connected to the wrong terminal or if the input mode is correct. ● Check if the signal cable connection between video frequency source and the liquid crystal TV set is correct.
Deterioration of color phase or color tone	● Check if all the picture setups have been corrected.
Screen position or size is not proper	● Check is the screen position and size is correctly set up.
Picture is twisted and deformed	● Check to see if the picture-frame ratio is properly set up.
Picture color changed or colorless	● Check the "Component" or "RGB" settings of the liquid

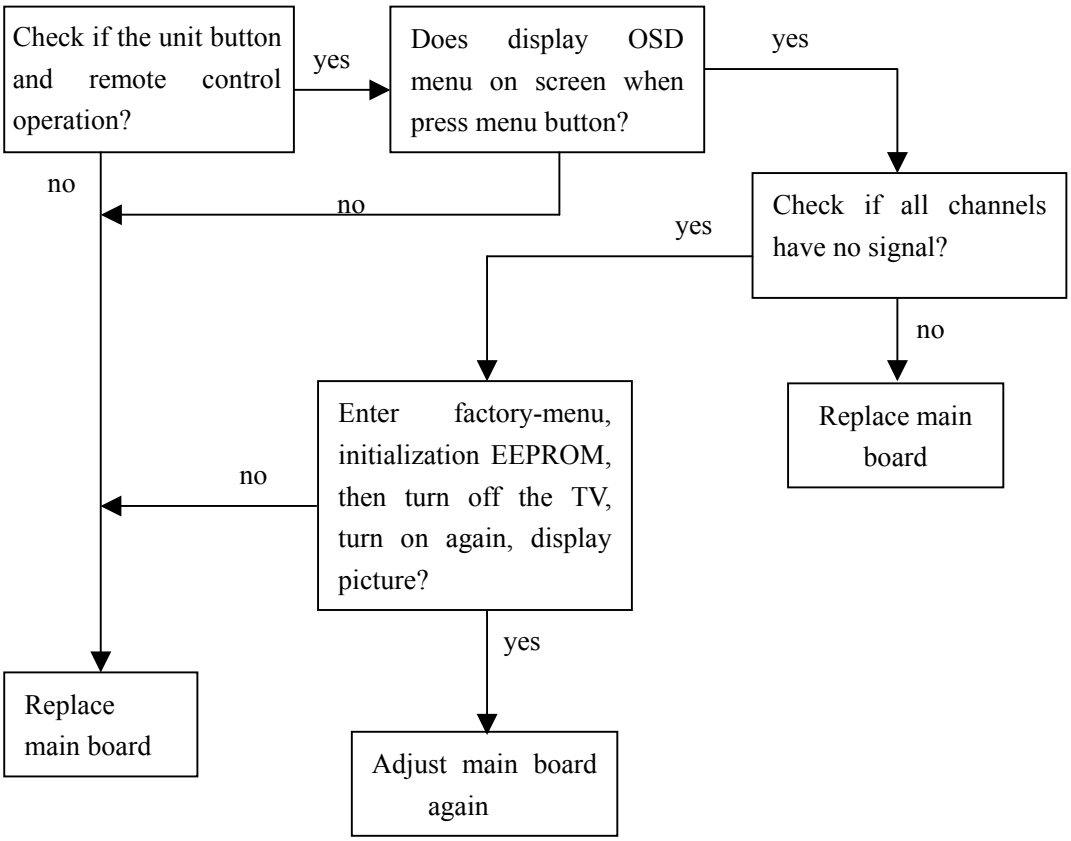
	crystal TV set and make proper adjustment according to the signal types.
Picture too bright and there is distortion in the brightest area	● Check if the contrast setting is too high. ● Possibly the output quality of DVD broadcaster is set too high. ● It maybe also due to improper terminal connection of the video frequency signal in a certain position of the system.
Picture is whitish or too bright in the darkest area of the picture	● Check if the setting for the brightness is too high ● Possibly the brightness grade of DVD player (broadcaster) is set too high.
No picture or signal produced from the displayer if “XXX in search” appears.	● Check if the cable is disconnected. ● Check if it’s connected to the proper terminal or if the input mode is correct.
There appears an indication - “outside the receivable scope)	● Check if the TV set can receive input signal. The signal is not correctly identified and VGA format is beyond the specified scope.
Remote control cannot work properly	● Check if the batteries are installed in the reverse order. ● Check if the battery is effective. ● Check the distance or angle from the monitor. ● Check if there is any obstruct between the remote control and the TV set. ● Check if the remote control signal- receiving window is exposed to strong fluorescence.
No picture and sound, but only hash.	● Check if the antenna cable is correctly connected, or if it has received the video signal correctly.
Blur picture	● Check if the antenna cable is correctly connected. ● Of if it has received the right video signal.
No sound	● Check if the “mute” audio frequency setting is selected. ● Check if the sound volume is set to minimum. ● Make sure the earphone is not connected. ● Check if the cable connection is loose.
When playing VHS picture search tape, there are lines at the top or bottom of the picture.	● When being played or in pause VHS picture search tape sometimes can’t provide stable picture, which may lead to incorrect display of the liquid crystal TV, In this case please press “auto” key on the remote control so as to enable the liquid crystal TV set to recheck the signal and then to display correct picture signal

2. Troubleshooting guide

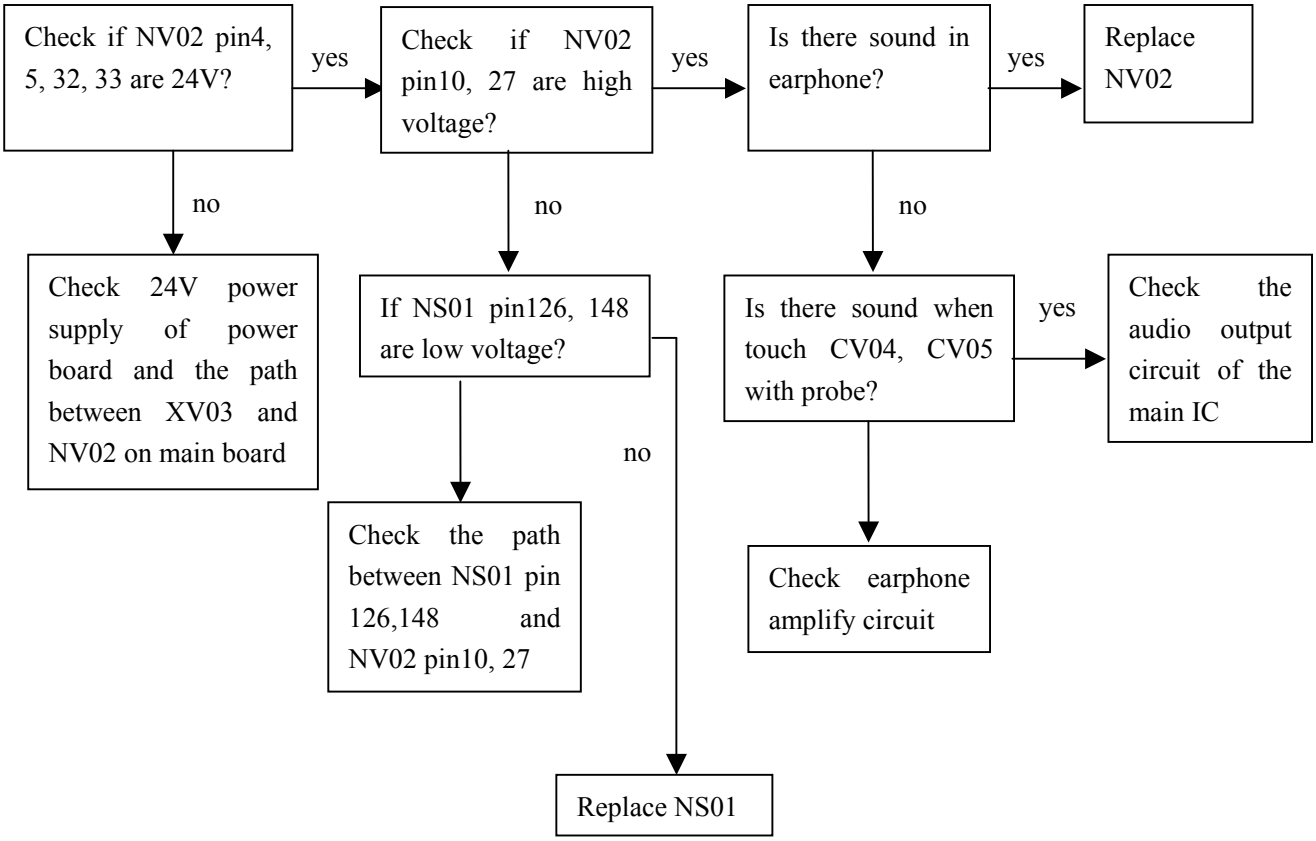
2.1. No raster

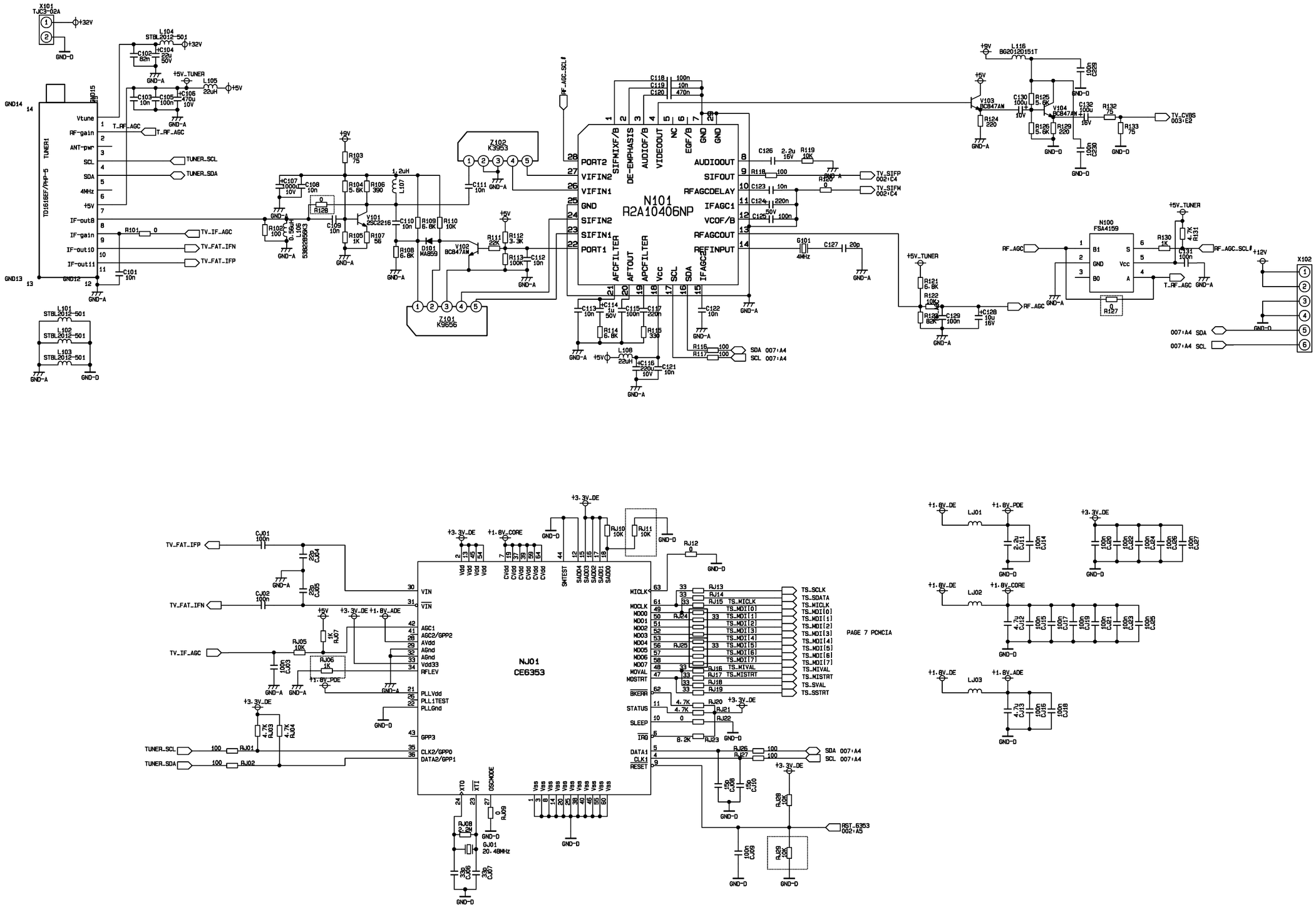


2.2. Backlight, but no picture

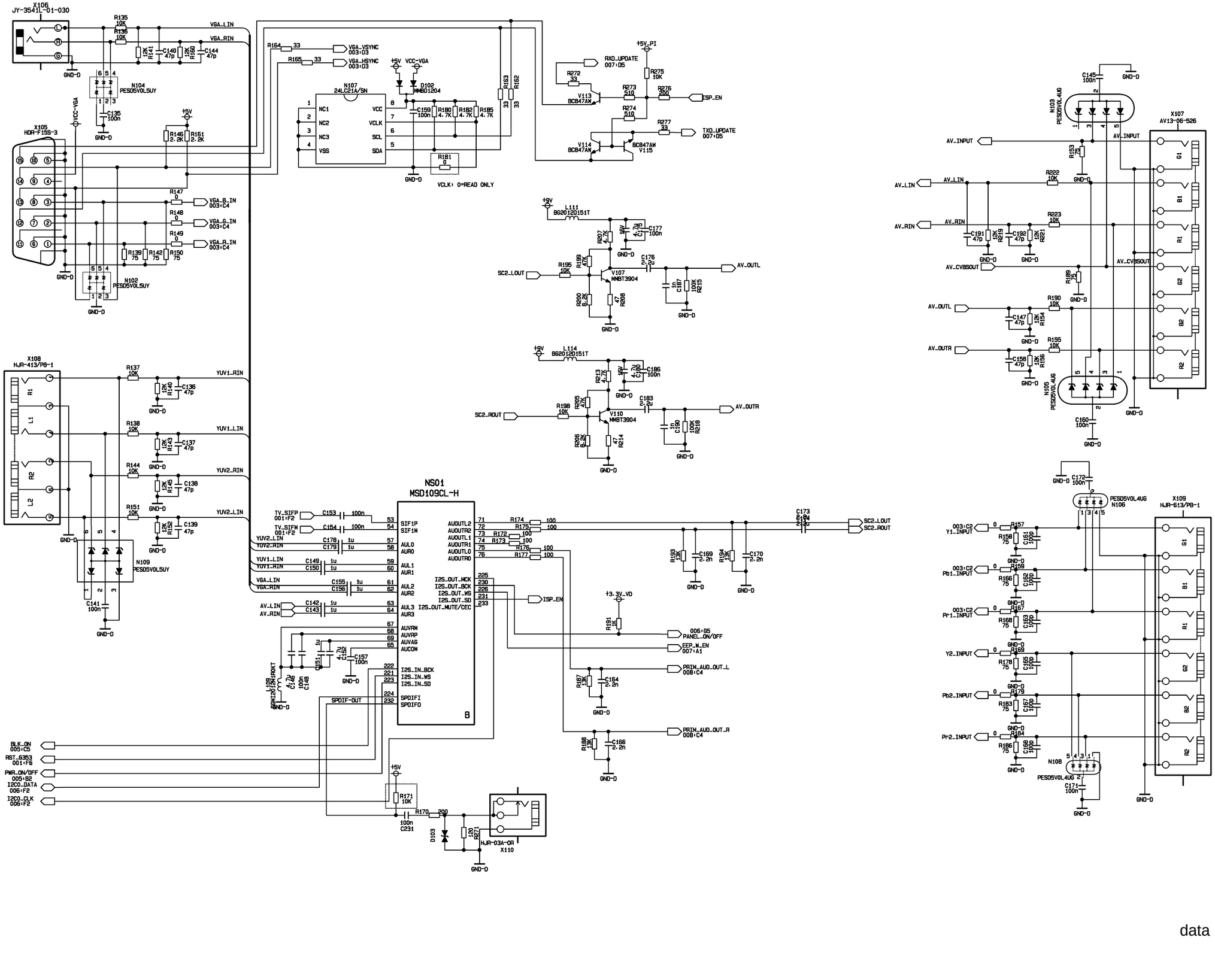


2.3 Picture, but no sound

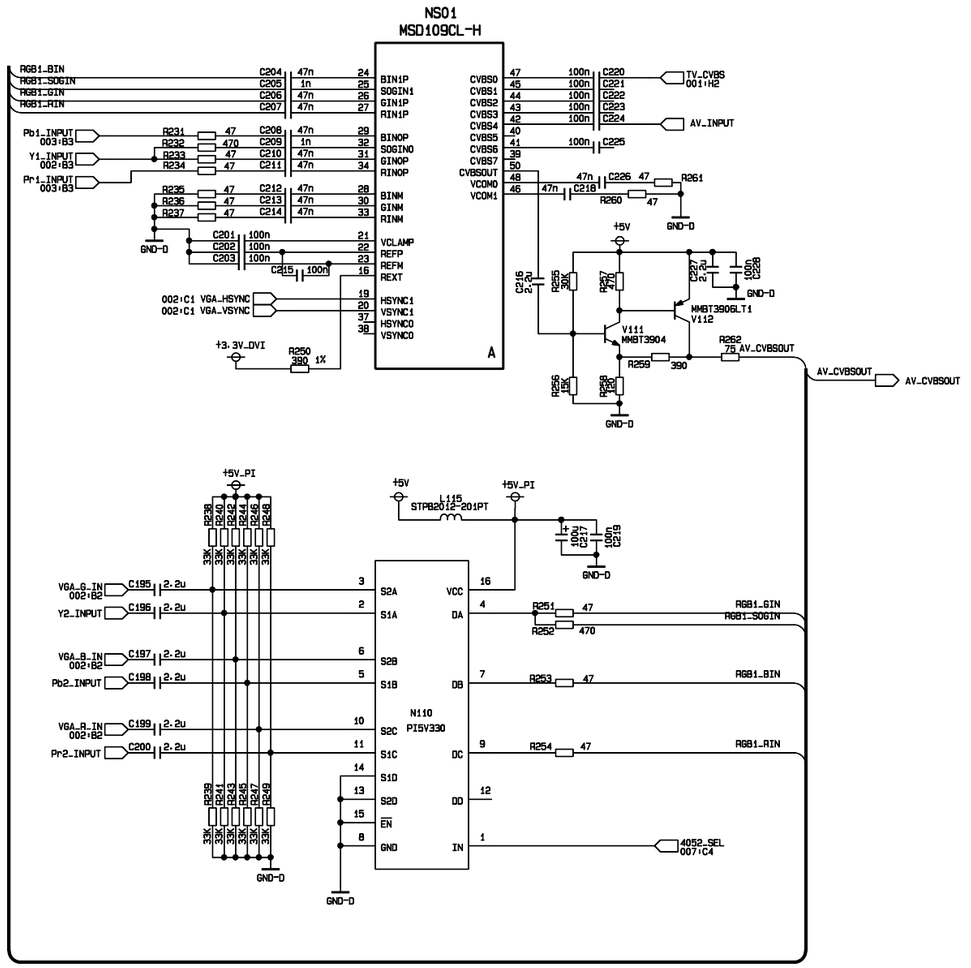




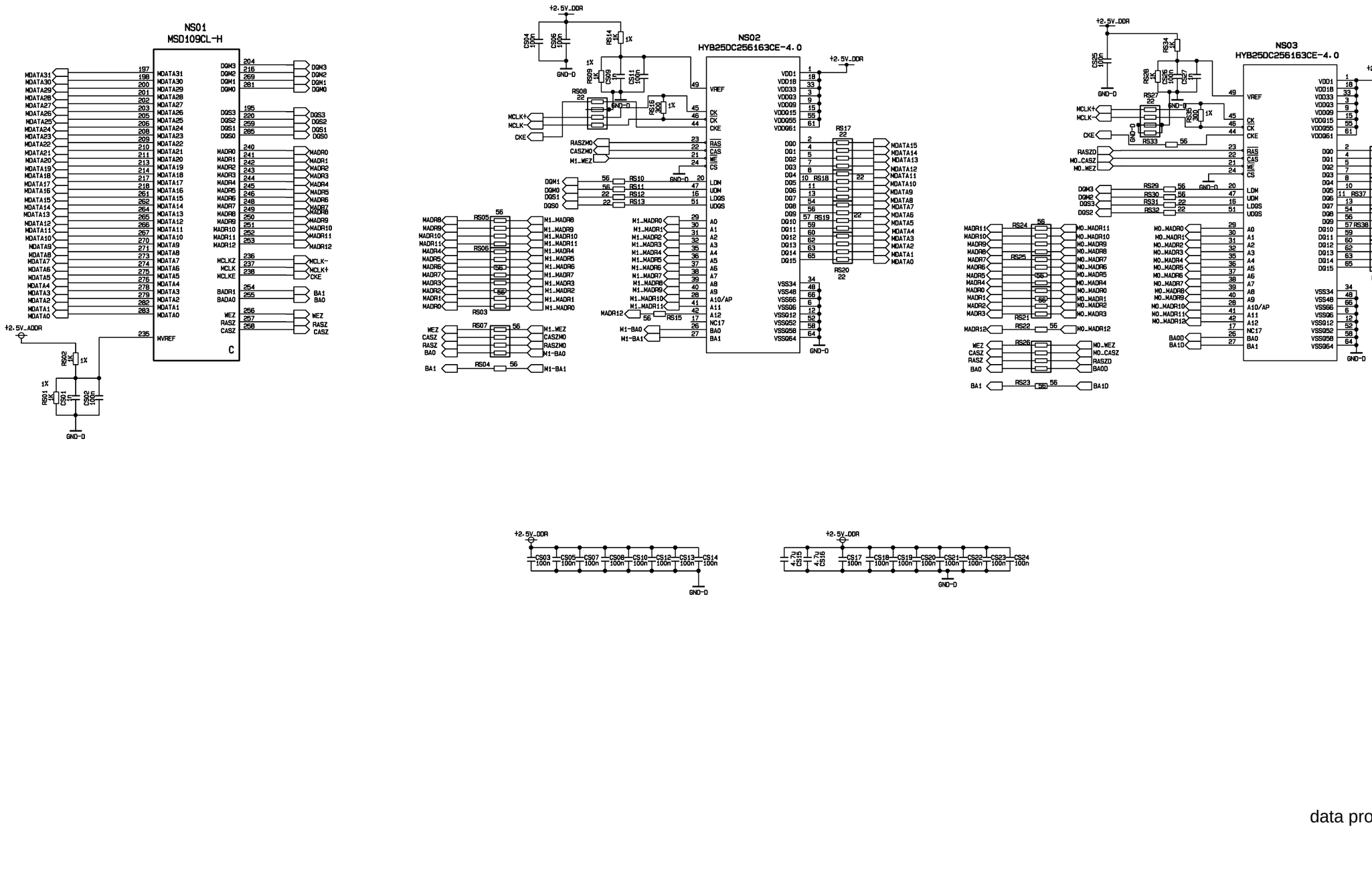
data process



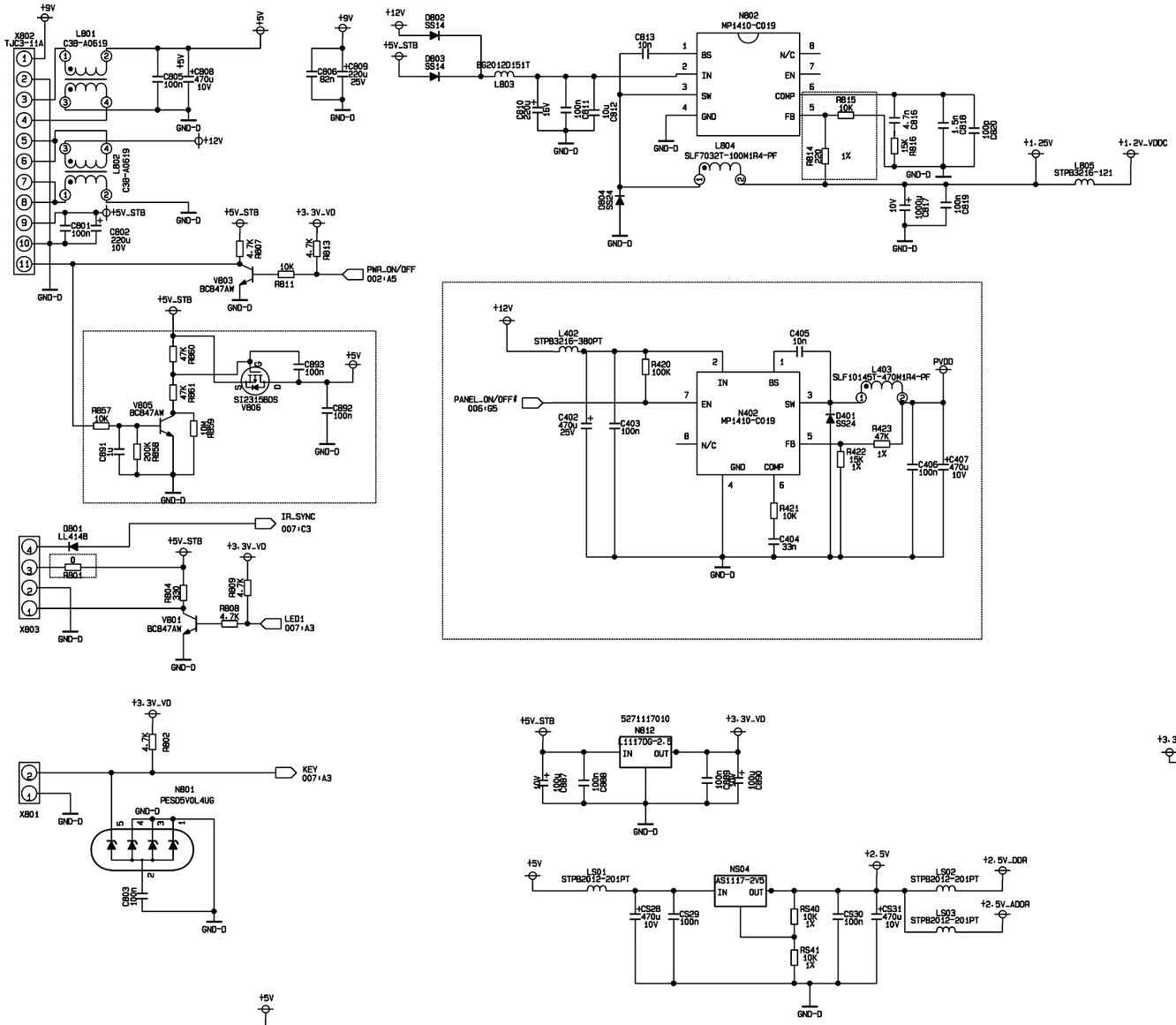
data process



data process



data process



data process

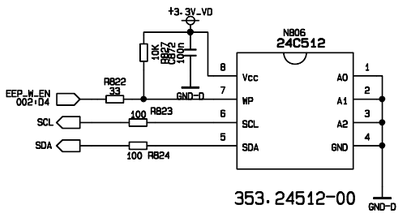
MODE C

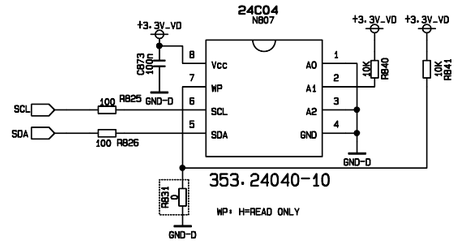
I2C_ADDR=0 -> Control Register: 9C/9D,
EDID Shadow: 9E/9F

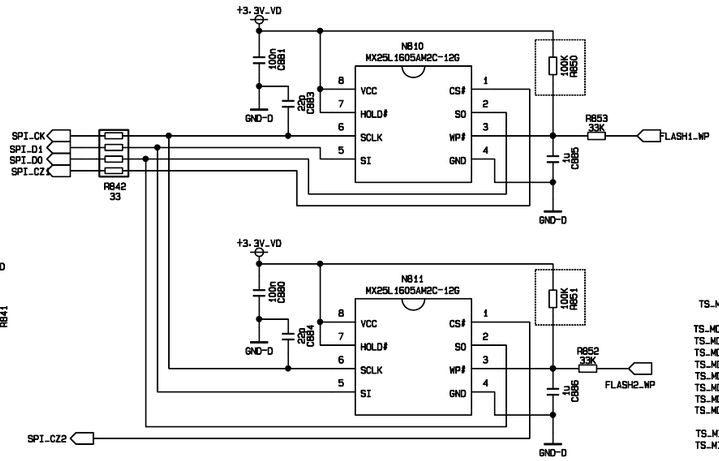
I2C_ADDR=1 -> Control Register: BC/BD,
EDID Shadow: BE/BF

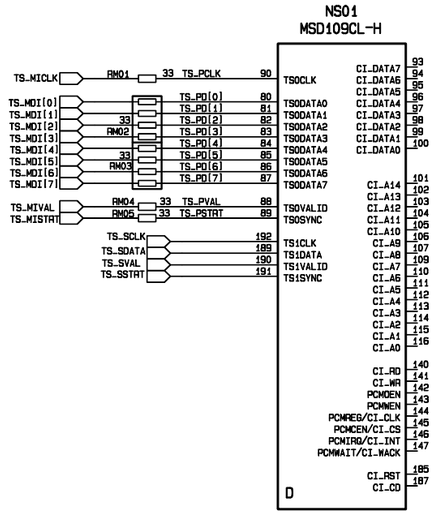
WP: H=READ ONLY

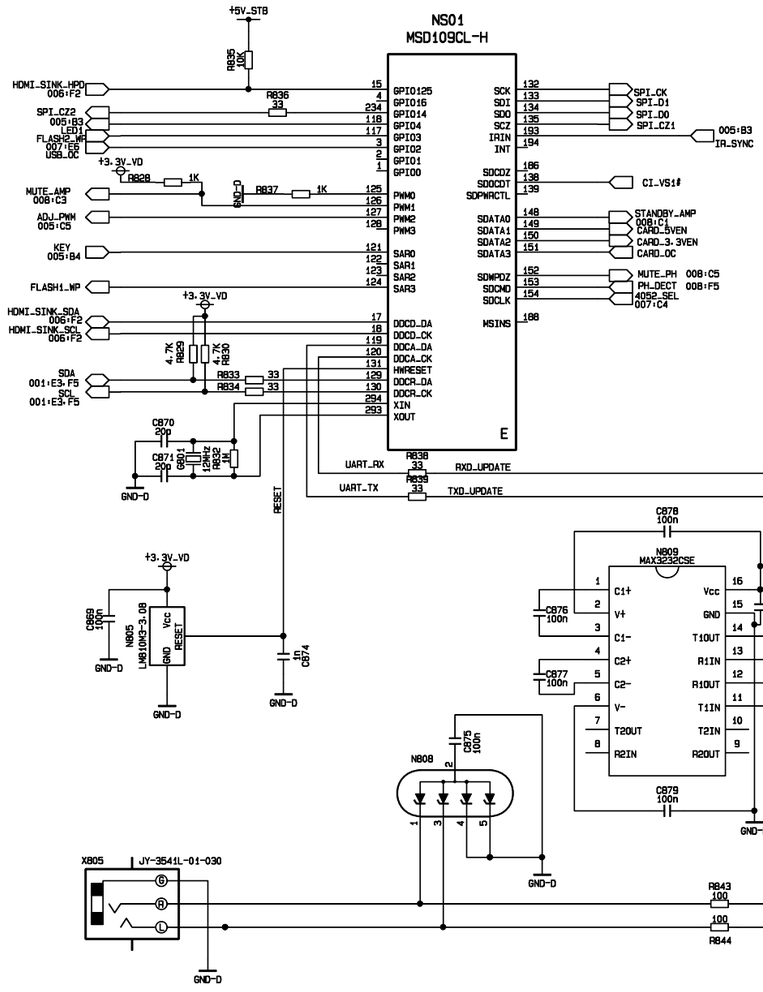
data process

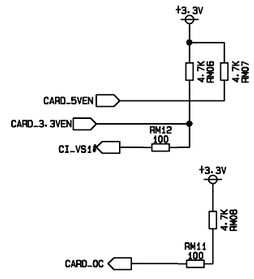




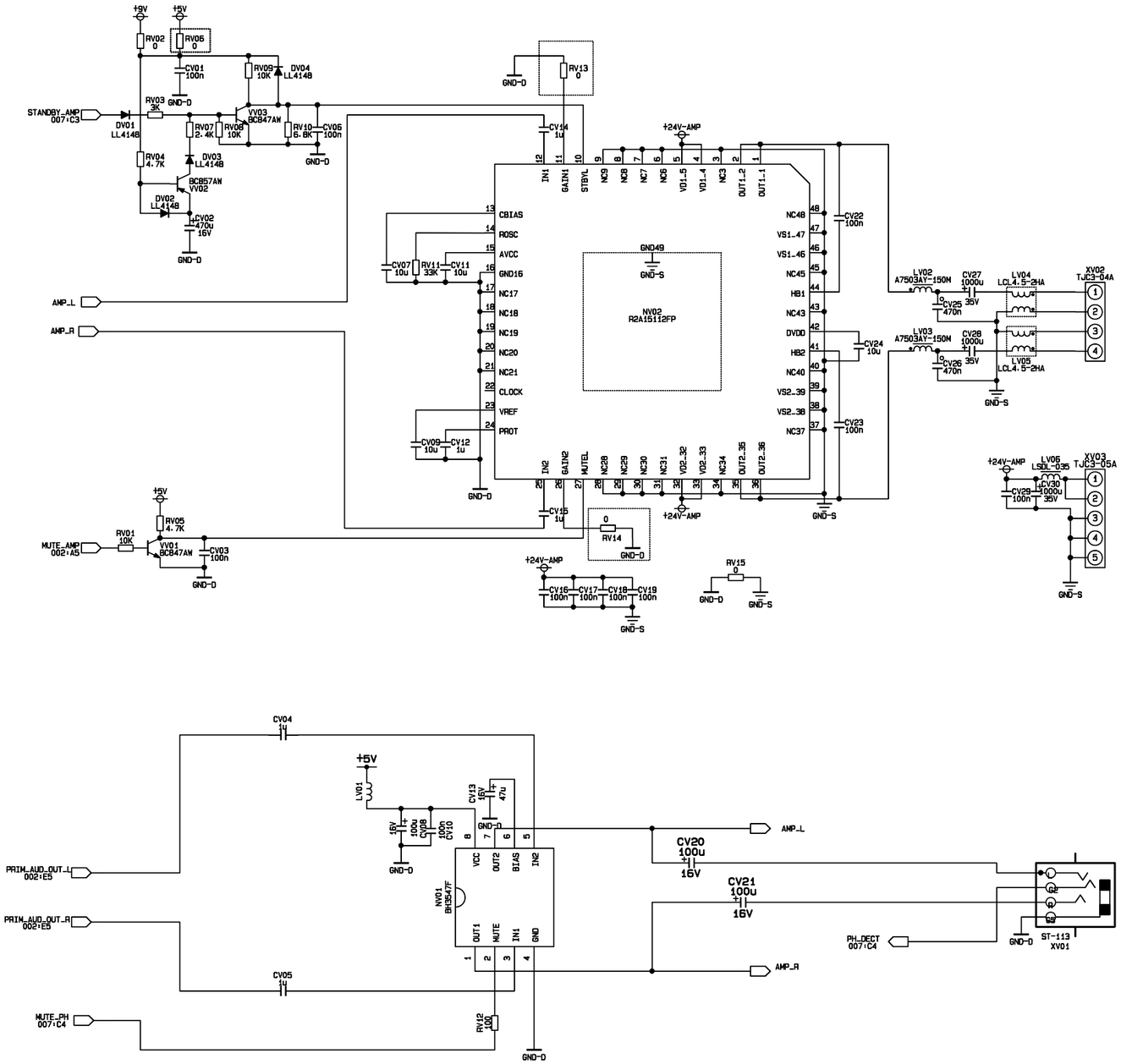




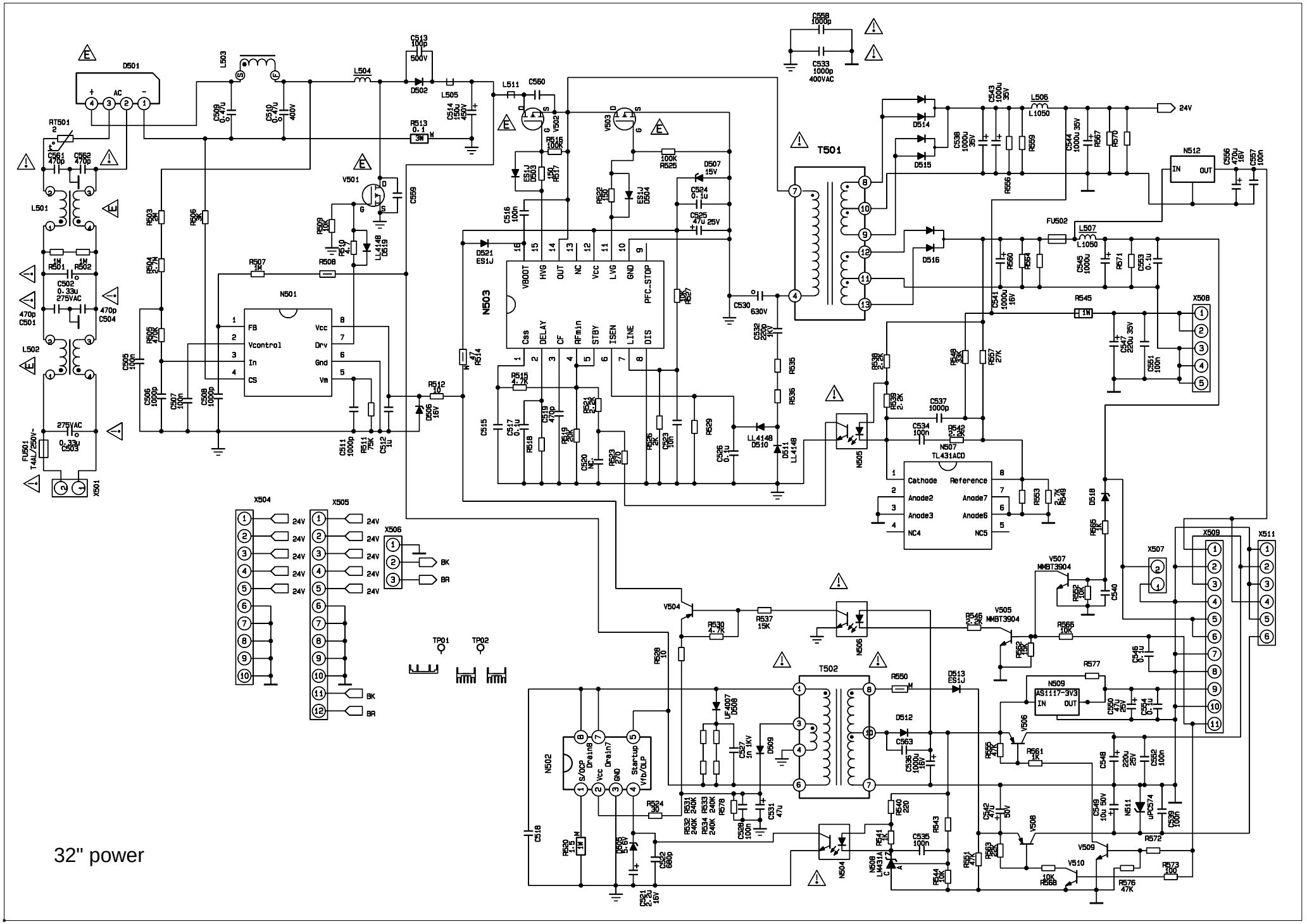


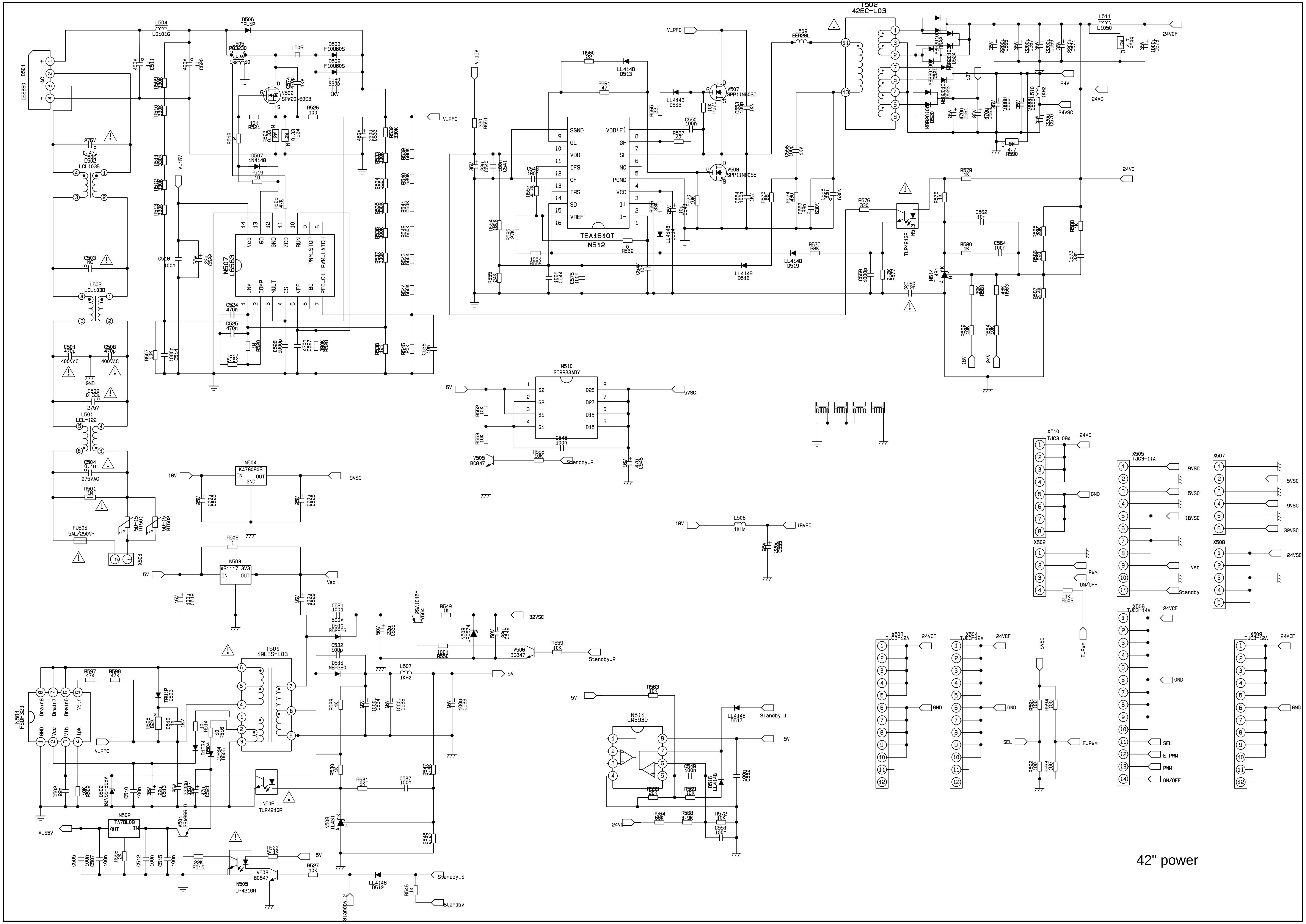


data process



data process


32" power



D501
D5SB60
AC
L504
LG101G
D506
TRU1P
L505
PQ3230
L506
D508
F10U60S
D509
F10U60S
C530
330p
1KV
C574
470p
V502
SPW20N60C3
R526
100
R521
10K
R523
0.33
R524
0.33
2W
R518
2
D507
1N4148
R519
10
R525
47K
C511
1u
400V
C520
1u
400V
R509
330K
R510
330K
R511
330K
R512
330K
R513
330K
V_15V
C518
100n
C522
22u
35V
N507
L6563
Vcc
GD
GND
ZCD
RUN
PWM_STOP
PWM_LATCH
INV
COMP
MULT
CS
VFF
TBO
PFC_OK
C524
470n
C525
470n
R517
6.8K
R520
1M
C526
1000p
C527
470n
R528
390K
R507
10K
C514
1000p
C533
220u
450V
R532
330K
R533
330K
R534
330K
R535
330K
R536
300K
R537
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R538
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R539
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R541
560K
R542
560K
R543
560K
R544
560K
R545
20K
C538
10n
V_PFC
C506
0.47u
275V
L502
LCL103B
C503
NC
L503
LCL103B
C501
470p
400VAC
C508
470p
400VAC
GND
C509
0.33u
275V
L501
LCL-122
C504
0.1u
275VAC
R501
1M
FU501
T5AL/250V~
RT501
5D-15
RT502
5D-15
X501
R551
220
C540
22u
35V
C541
100n
R560
22
D513
LL4148
R561
47
D515
LL4148
R565
22
R571
10K
C550
100n
R567
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SPP11N60S5
V508
SPP11N60S5
C553
100p
1KV
C554
100p
1KV
SGND
GL
VDD
IFS
CF
IRS
SD
VREF
VDD(F)
GH
SH
NC
PGND
VCO
I+
I-
TEA1610T
N512
C543
180p
R557
4.7K
R554
180K
R595
27K
R558
100K
R562
0
R566
33K
C548
10u
25V
D514
LL4148
R570
10K
R555
24K
C544
100n
C575
100n
C547
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R575
68K
R573
68
R574
430
C556
100p
1KV
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33n
630V
C558
33n
630V
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EER28L
T502
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1000p
R577
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C560
2.2n
R576
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N513
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D520
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35V
C569
2200u
35V
C571
2200u
35V
L511
L1050
R589
4.7
5W
C573
1000u
35V
24VCF
18V
24V
C561
470u
25V
C563
470u
25V
C566
1000u
35V
C568
1000u
35V
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43K
R582
10K
R584
10K
R585
20K
R586
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2.4K
R588
1K
C572
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SI9933ADY
S2
G2
S1
G1
D28
D27
D16
D15
5V
5VSC
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10K
R553
10K
C545
100n
R556
10K
Standby_2
V505
BC847
C546
47u
16V
N504
KA78090R
IN
OUT
GND
9VSC
C523
220u
25V
C528
220u
25V
R506
1
N503
AS1117-3V3
Vsb
C519
100u
16V
C529
100u
16V
L508
1KHz
18VSC
C555
220u
25V
C531
100p
500V
D510
S5295G
C532
100p
D511
MBR360
T501
19LES-L03
C535
22u
50V
V504
2SA1015Y
R549
1K
32VSC
N509
uPC574
C542
22u
50V
R550
100K
V506
BC847
R559
10K
L507
1KHz
C534
1000u
16V
C536
1000u
16V
C539
100u
16V
N501
FSDH321
Drain8
Drain7
Drain6
Vstr
Vcc
Vfb
Ipk
R597
47K
R598
47K
D503
TRU1P
R508
82K
C516
1n
1KV
R514
10
R516
10
D504
D1FS4
D505
D1FS4
C502
22n
R502
10K
D502
BZV55-B16V
C510
100n
C513
22u
35V
C517
2200u
35V
C521
47u
35V
N506
TLP421GR
R529
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R530
1K
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TA78L09
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C507
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R596
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LL4148
Standby_1
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R563
10K
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LM393D
D517
LL4148
C549
100n
R599
20K
R569
10K
D516
LL4148
C552
100n
R564
68K
R568
3.9K
R572
10K
C551
100n
X510
TJC3-08A
X502
PWM
ON/OFF
R503
1K
E_PWM
X505
TJC3-11A
X507
X508
X506
TJC3-14A
SEL
X503
TJC3-12A
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X509
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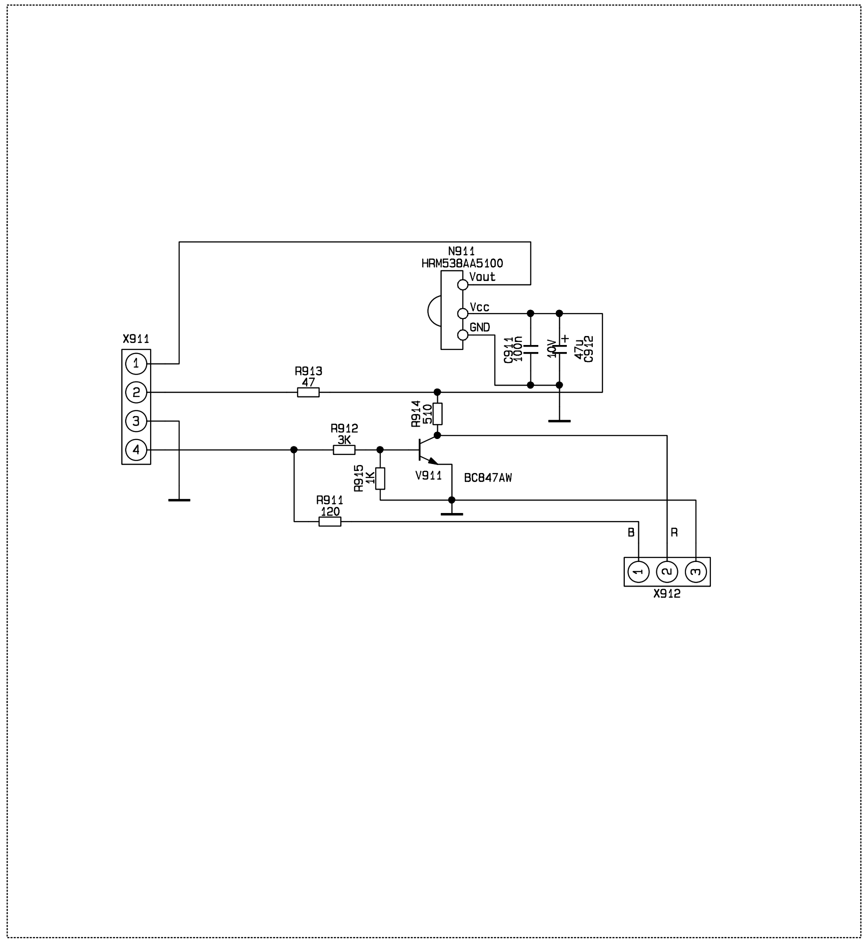
100
R594
100
R592
100
R593
100

42" power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HRM538AA5100
Vout
Vcc
GND
X911
R913
47
C911
100n
10V
47u
C912
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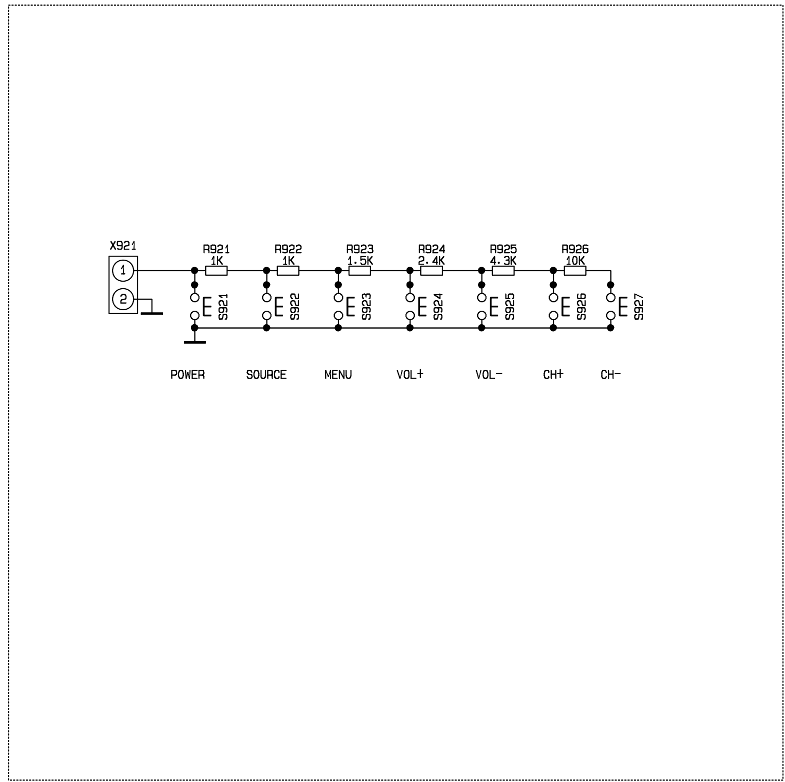
1K
V911
BC847AW
R911
120
B
R
X912

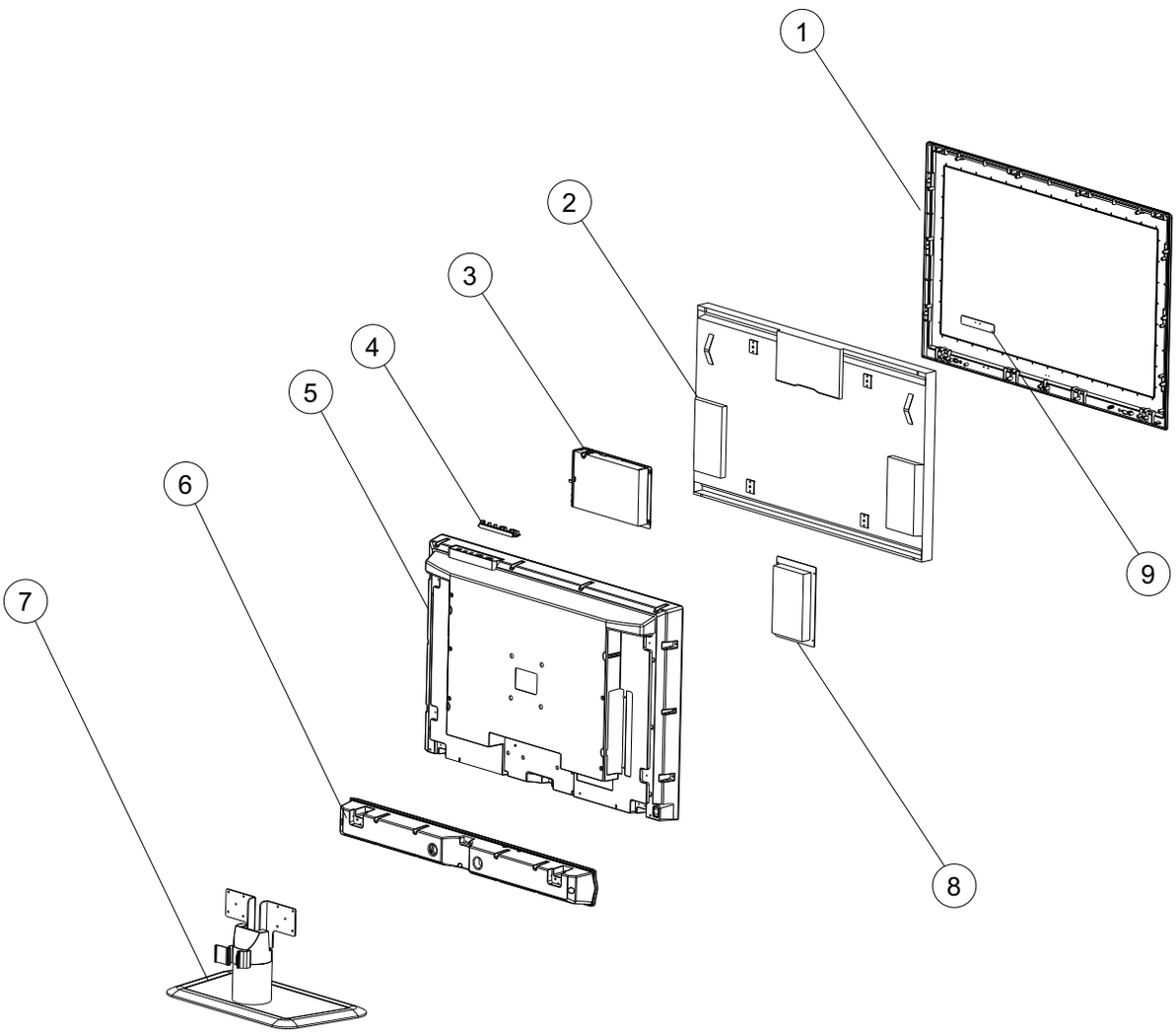

X921
R921
1K
R922
1K
R923
1.5K
R924
2.4K
R925
4.3K
R926
10K
S921
S922
S923
S924
S925
S926
S927
POWER
SOURCE
MENU
VOL+
VOL-
CH+
CH-

IR, key

APPENDIX-A: Main assembly LCD-32XR8DA

NAME	NO.	MAIN COMPONENT AND IT'S NO.	
Data processing board	**XI6HE0286910**	NS01 N101 NJ01 NA5 NV02	MSD109CL (5270109001) R2A10406NP (5271040601) CE6353 (5276353001) PS321TQF (5270321001) R2A15112FP (5271511201)
IR board	XI6HU0310910		
Key board	XI6HU0310510		
Power board	XI6HU0212010		
Remote control	XI6010J01701	RC-J17-0A	
Panel	XI520325207	CLAA320WF01U	

LCD-32XR8DA



PART LIST
LCD-32XR8DA ver.1.0

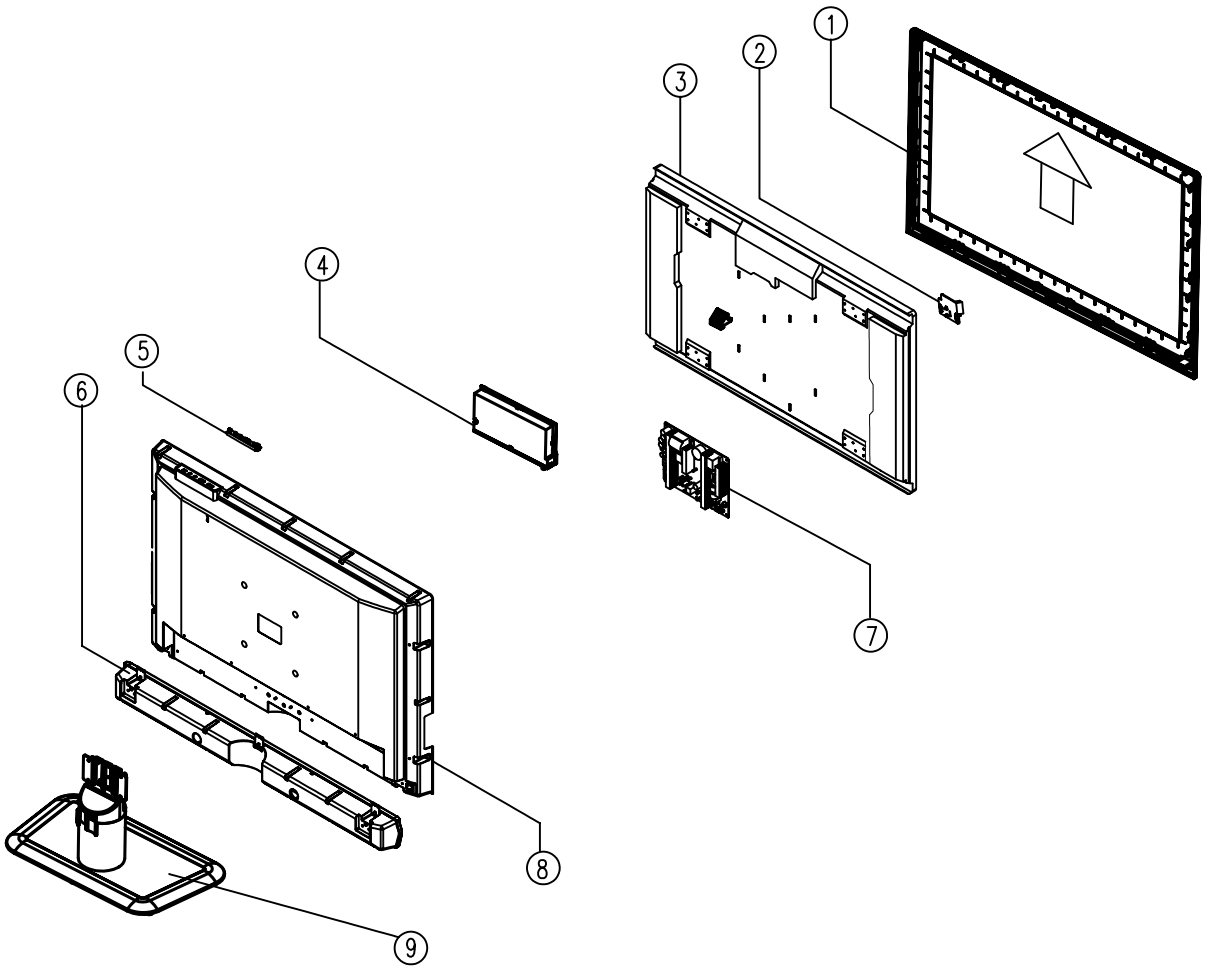
REF.No	PARTS No.	DESCRIPION	Q'TY	REMARK
1	XI5QG32L207A	Front cabinet	1	
2		Panel	1	CPT CLAA320WF01U
3	XI6HE0286910	Data processing board	1	
4	XI6HU0310510	Key board	1	
5	XI5HG32WH02C	Back cabinet	1	
6	XI6170658070	Speaker	1	
7	XI6151077750	Stand	1	
8	XI6HU0212010	Power board	1	
9	XI6HU0310910	IR board	1	
10	XI5944032600	User manual	1	
11	XI6010J01701	Remote control	1	

- Only the parts in above list are used for repairing.
- Other parts except the above parts can't be supplied.

APPENDIX-A: Main assembly LCD-42XR8DA

NAME	NO.	MAIN COMPONENT AND IT'S NO.	
Data processing board	XI6HE0086910	NS01 N101 NJ01 NA5 NV02	MSD109CL (5270109001) R2A10406NP (5271040601) CE6353 (5276353001) PS321TQF (5270321001) R2A15112FP (5271511201)
IR board	XI6HU0310910		
Key board	XI6HU0230510		
Power board	XI6FN0132010		
Remote control	XI6010J01701	RC-J17-0A	
Panel	XI5203428504	V420H1-L11	

LCD-42XR8DA

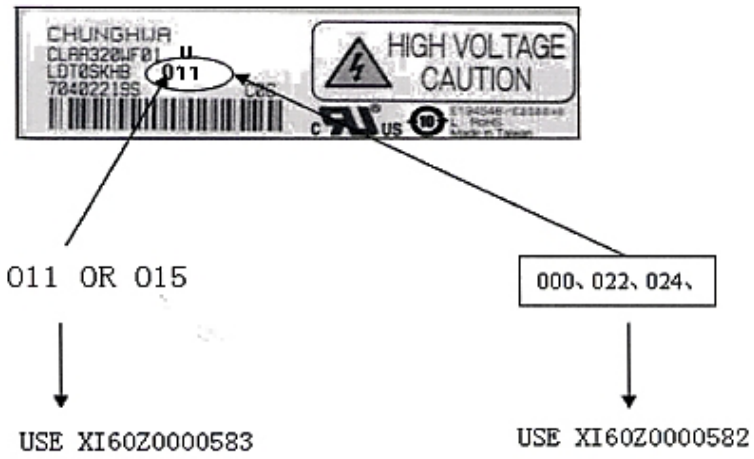


Part list

LCD-32XR8DA Ver. 2.0

Ref No.	Parts No.	Description	Original Country	Remark
1	XI5QG32L207A	FRONT CABINET	CHINA	
2	XI5203325208	PANEL	CHINA	CLAA320WF01U
2	XI5203325209	PANEL	CHINA	CLAA320WF01UX
3	XI6HE0286310	Data PROCESSING BOARD	CHINA	
4	XI6HU0310510	KEY BOARD	CHINA	
5	XI5HG32WH02C	BACK CABINET	CHINA	
7	XI6151077750	STAND	CHINA	
8	XI6HU0212010	POWER BOARD	CHINA	
9	XI6HU0310910	IR BOARD	CHINA	
10	XI5944032600	USER MANUAL	CHINA	
11	XI6010J01701	RC	CHINA	
12	XI60Z0000593	T-CON BOARD	CHINA	
13	XI60Z0000582	BACK LIGHT BOARD	CHINA	000/022/024
13	XI60Z0000583	BACK LIGHT BOARD	CHINA	011/015

Remark: 1. Which Back light board you need, plz judge by following DIAGRAM.



2.Which panel do you need, plz judge by the following unit SN:

Serial No. Range	Qty	Panel
8007732XR8DA0001-8007732XR8DA0200	200	XI5203325208
800732XR8DAB00001-800732XR8DAB0126	126	XI5203325208
8007732XR8DA0201-8007732XR8DA0600	400	XI5203325208
800932XR8DA0001-8007732XR8DA1440	1440	XI5203325208
8010BL32XR8DA12001-8010BL32XR8DA16000	4000	XI5203325209
8010BL32XR8DA00001-8010BL32XR8DA12000	12000	XI5203325209
8011SL32XR80A0001-8011SL32XR80A0126	126	XI5203325209

- Only the parts in above list are used for repairing.
- Other parts except the above parts can't be supplied.
- The unit price is just the reference price.

June/2008

SANYO Electric Co., Ltd.